Mon. Not. R. Astron. Soc. **000**, 1–16 (2012) Printed 8 November 2012 (MN LaTeX style file v2.2)

A photometric study of chemically peculiar stars with the *STEREO* satellites. II. Non-magnetic chemically peculiar stars*

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ABSTRACT
We have analysed the photometric data obtained with the *STEREO* spacecraft for 558 non-magnetic chemically peculiar (CP) stars to search for rotational and pulsational variability. Applying the Lomb-Scargle and the phase dispersion minimisation methods, we have detected photometric variability for 44 objects from which 35 were previously unknown. The new objects are all bright stars on the Ecliptic Plane (magnitude range $4.7 < V < 11.7$) and will therefore be of great interest to studies of stellar structure and evolution. In particular, several show multiple signals consistent with hybrid δ Scuti and γ Doradus pulsation, with different periodicities allowing very different regions of the stellar interior to be studied. There are two subgroups of stars in our sample: the cool metallic line Am (CP1) and the hot HgMn (CP3) stars. These objects fall well inside the classical instability strip where δ Scuti, γ Doradus and slowly pulsating B-type stars are located. We also expect to find periods correlated to the orbital period for CP1 objects as they are mostly members of binary systems. For CP3 stars, rotationally-induced variability is still a matter of debate. Although surface spots were detected, they are believed to produce only marginal photometric amplitudes. So, periods from several hours to a few days were expected for these two star groups. The *STEREO*/HI-1 data are well matched to studies of this frequency domain, owing to the cadence of approximately 40 minutes, and multiple epochs over four and a half years. The remaining 514 stars are likely to be constant in the investigated range from 0.1 to 10 days. In some cases, the presence of blending or systematic effects prevented us from detecting any reliable variability and in those cases we classified the star as constant. We discuss our results in comparison to already published ones and find a very good agreement. Finally, we have calibrated the variable stars in terms of the effective temperature and luminosity in order to estimate masses and ages. For this purpose we used specifically developed calibrations for CP stars and, when available, HIPPARCOS parallaxes. All but two objects cover the stellar mass range from 1.5 to 5 $M_\odot$ and are located between the Zero- and Terminal Age Main Sequence.

Key words: techniques: photometric – catalogues – stars: chemically peculiar – stars: rotation – stars: variables: δ Scuti

1 INTRODUCTION

In the first paper of this series (Wraight et al. 2012, WFN12 hereafter), we presented photometric time series of 337 magnetic chemically peculiar stars from the NASA's twin *STEREO* spacecraft. In total, 82 objects were identified as variable caused by rotation in the presence of surface spots (Mikulášek et al. 2011).

As a further step, the light curves of non-magnetic chemically peculiar (CP) stars of the upper main sequence were analysed. The sample consists of cool metallic line Am (CP1) and the hot HgMn (CP3) stars. Most CP1 and CP3 stars are members of a binary system in which the rotation of the stars has been slowed down by tidal interaction. The members of these groups have stellar masses from 1.5 to 5 $M_\odot$ and are located between the zero- and terminal age main sequence. Thus, they fall well inside the classical instability

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strip where δ Scuti, γ Doradus and slowly pulsating B-type **(SPB)** stars are found. Indeed, these types of pulsators were found among CP1 and CP3 stars (Alecian et al. 2009; Smalley et al. 2011). The *STEREO*/HI-1 data have a cadence of approximately 40 minutes, and multiple epochs over four and a half years. Therefore, these data sets are perfectly suited to find the predicted periods of variability.

We have analysed photometric data, obtained with the *STEREO* spacecraft, of 558 stars listed in the Renson & Manfroid (2009) catalogue as known or suspected CP1/3 objects and identified 44 variable stars from which 35 were previously unknown. This catalogue is the most comprehensive available, although the collected observations are rather inhomogenous and little is known of many of the stars in our sample. It is therefore important to constrain which stars are constant, within our detection limits, in order to focus immediate future efforts on the variable stars. Therefore, although 399 stars were clearly constant or the data of insufficient quality or quantity for analysis, 115 stars are also listed that were examined in as much detail as the 44 variable stars. In some cases weak signals were observed at low statistical significance, or systematic effects may have prevented the detection of low amplitude variability, however many appear also to be constant within the sensitivity of *STEREO*/HI-1. These stars may be constant, or variable with an amplitude below the sensitivity of *STEREO*/HI-1, variable with a periodicity outside the range 0.1 to 10 days, variable in a part of the spectrum which *STEREO*/HI-1 is not sensitive to or rotational variables seen pole-on.

2 OBSERVATIONS AND DATA ANALYSIS

In the following we give a short overview of the observations and the applied data analysis. This should serve as a guideline for the understanding of the apparent limitations of the result. For further details the reader is referred to the description in WFN12.

The observations were obtained by the twin *STEREO* spacecraft using the Heliospheric Imager cameras (*STEREO*/HI-1A and *STEREO*/HI-1B).

Each image has a field of view of 20 degrees by 20 degrees with a pixel scale of 70 ” per pixel, centred 14 degrees away from the centre of the Sun. A single filter, with a spectral response mostly between 6300 Å and 7300 Å, is used. The integration time was 40 seconds with a summed image cadence of 40 minutes. In general, an object remains in the field of view of the *STEREO*/HI-1A/B imagers for 19/22 days. In summary, each data set covers a total span of four and a half years, with about twenty days continuous observations per HI camera, and gaps of about one year.

The light curves were cleaned by removing all data points more than four standard deviations away from the weighted mean magnitude. Polynomial detrending is then carried out using a 4th order polynomial in order to correct for any existing residual trends.

The time series analysis was performed in several stages. First, synthetic light curves are constructed and the least-squared error of the model compared to the actual light curve is measured. Then the period and amplitude was iteratively determined. The periodograms and light curves were visually inspected, primarily to extract from the sample the objects which appeared clearly constant. Additionally, we classified as constant those stars which were so faint that any signal would be likely due to noise or if systematic effects were so extreme that the data were unusable. The same classification was given to the stars for which the lack of data prevented the reliable detection of any variability. The list of those 399 stars is given in Table 1.

The final stages of the detailed analysis were done with Peranso[1]. Two algorithms were applied, to cross-check each other and avoid duplicating weaknesses. In each case, we searched for periods between 0.1 and 10 days, although in a few individual cases a search was made outside this range. The Lomb-Scargle method (Scargle 1982) was employed in the period domain, whereas the phase dispersion minimisation (PDM) method (Stellingwerf 1978) was employed in the frequency domain. The latter are using Θ, defined in Stellingwerf (1978) which gives a direct indication of the significance of a certain period. We then examined the significant features in the periodogram produced with each method to extract the most likely period, its uncertainty and the epoch of the first maximum in the *STEREO* light curve.

3 RESULTS

As a result, we obtained:

- 399 stars without a reliable detection (Table 1)
- 115 constant stars (Table 2)
- 44 variable stars (Table 3)

As mentioned in Sect. 2, Table 1 lists all stars that were immediately classified as constant, but it also includes stars for which the photometry was clearly affected by systematic effects and/or by blending, making the detection of any periodicity impossible. Table 2, on the other hand, includes all stars for which our analysis did not identify the presence of variability.

Each Table lists

- Column 1: star name
- Column 2: identification number by Renson & Manfroid (2009)
- Column 3 and 4: equatorial coordinates in degrees
- Column 5: average *V* magnitude
- Column 6: spectral classification and chemical peculiarity given by Renson & Manfroid (2009)
- Column 7: CP classification

The derived CP classification is a combination of the Catalogue of Ap, HgMn and Am stars by Renson & Manfroid (2009) as well as the extensive list of spectral types by Skiff (2012). If contradicting classifications within these references were found, a question mark was set.

Table 3 lists the variable objects

- Column 8 and 9: genuine period and its uncertainty
- Column 10: MJD of the epoch for the first recorded maximum
- Column 11: flag indicating the possible presence of blending (B), systematic (S) effects, or an exceptionally strong signal (“*”) (see WFN12, for more details)
- Column 12: period found in the literature with reference

For each star in this table, we generated a classical periodogram using the PDM method (Fig. 6) and a phase-folded light curve (Fig. 7). We use Θ as a direct indication of the periods’ significance.

[1] `http://www.peranso.com`

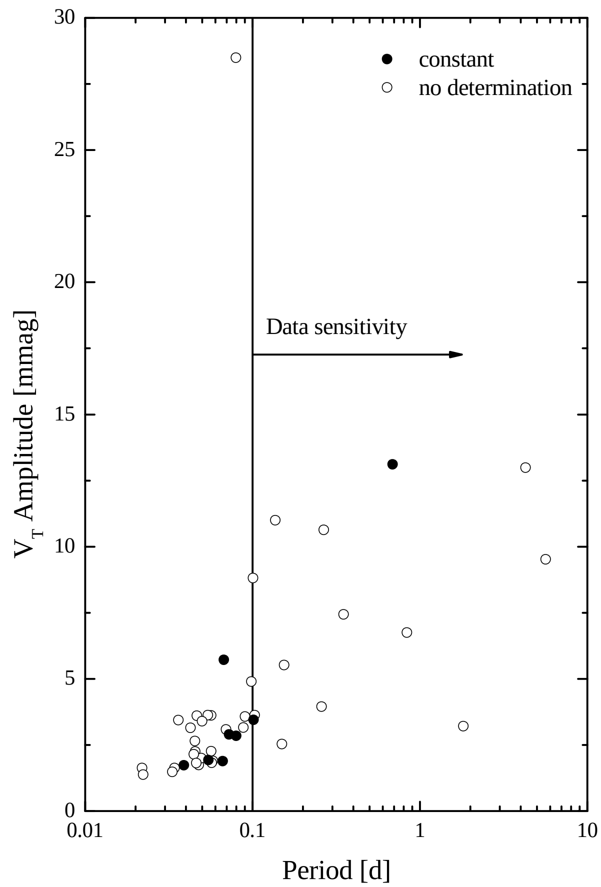

Figure 1. Periods and amplitudes of 44 variables identified by Smalley et al. (2011) for which no significant frequency was found in this work.

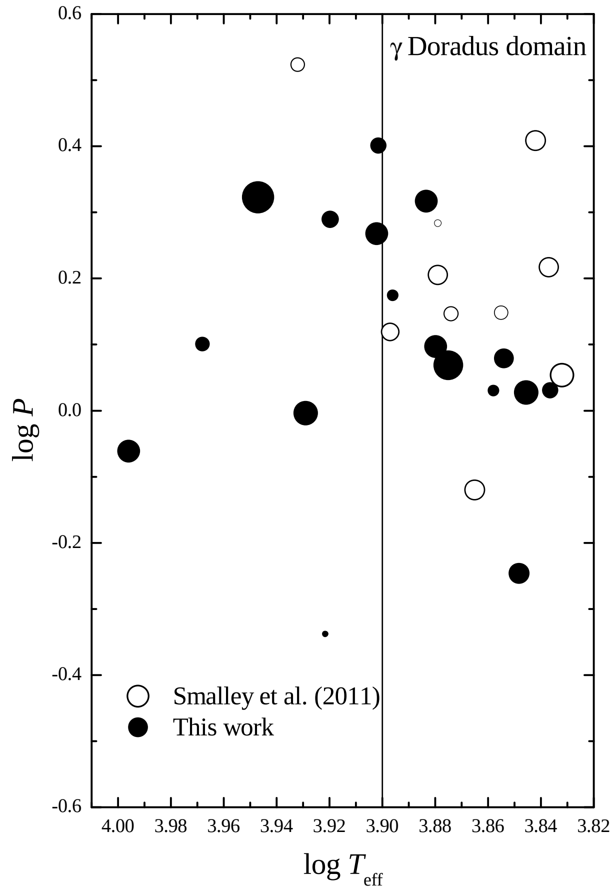

Figure 2. The γ Doradus stars taken from Smalley et al. (2011) and our variables in the temperature - period domain. The symbol sizes are proportional to the amplitudes. Objects which are hotter than log $T_{\rm eff} > 3.9$ are not pulsators but show variability due to multiplicity.

4 DISCUSSION

Recently, Smalley et al. (2011) presented SuperWASP photometric data of 1600 CP1 stars at a precision level of 1 mmag. They found about 200 objects which where identified as pulsating δ Scuti, γ Doradus and/or hybrids. Their target selection criteria was substantially similar to ours. We cross-matched the two samples and identified 36 objects for which we were not able to derive any variability, 8 stars, which we classified as constant, and one common variable. We further investigated the reason for the apparent inconsistency. Figure 1 shows the periods versus the amplitudes for those 44 objects. Most of these stars have periods and amplitudes below our instrumental sensitivity. However, we also looked for very short period variability by extending the period search down to 0.064 d when using the Lomb-Scargle method and further, to 18/d, when using Phase Dispersion Minimisation. As a result, our periodograms are mostly featureless not showing any significance.

In the context of the CP1 stars we analysed, the signal for TYC 1876-325-1 (0.1038 d) is the only one where the weak signal found seems likely to have originated in the target star, while the weak signals for HD 243093 (2.8426 d) and HD 146053 (1.2202 d) seem more likely to have originated in a neighouring star, although neither of these two stars has a variable star recorded in their vicinity. If we compare the signals extracted for these two stars with those recorded as such in WFN12, only the signal from HD 146053 might be strong enough, but the likelihood of blending discouraged us from reporting it.

Figure 2 shows the γ Doradus stars published by Smalley et al. (2011) and our variables in the temperature - period domain. As a temperature limit for the γ Doradus domain, we adopted log $T_{\rm eff} < 3.9$ which also includes all types of hybrid pulsators (Balona et al. 2011). Stars hotter than that are most certainly not members of this variable star group. The amplitudes of the γ Doradus type pulsation in that paper (Figure 6 therein) are found to be up to 25 mmag. The symbol sizes are proportional to the amplitudes which are all below 25 mmag.

In the following, we discuss individual stars from Table 3 which deserve special attention.

AAO+23 222, AAO+25 242, and AAO+28 487: The found amplitudes for these stars are between 30 and 41 mmag, respectively. Due to the lack of photometric measurements, we were not able to calibrate the effective temperatures for these objects. Even if they fall into the domain of γ Doradus pulsators (Fig. 2), their amplitudes are too large (Balona et al. 2011).

HD 23607: Fox Machado et al. (2006) analysed the pulsational characteristics of this Pleiades member in more details. In 1997, a STEPHI campaign was dedicated to this star. Up to now, no long term variations have been reported in the literature. Our

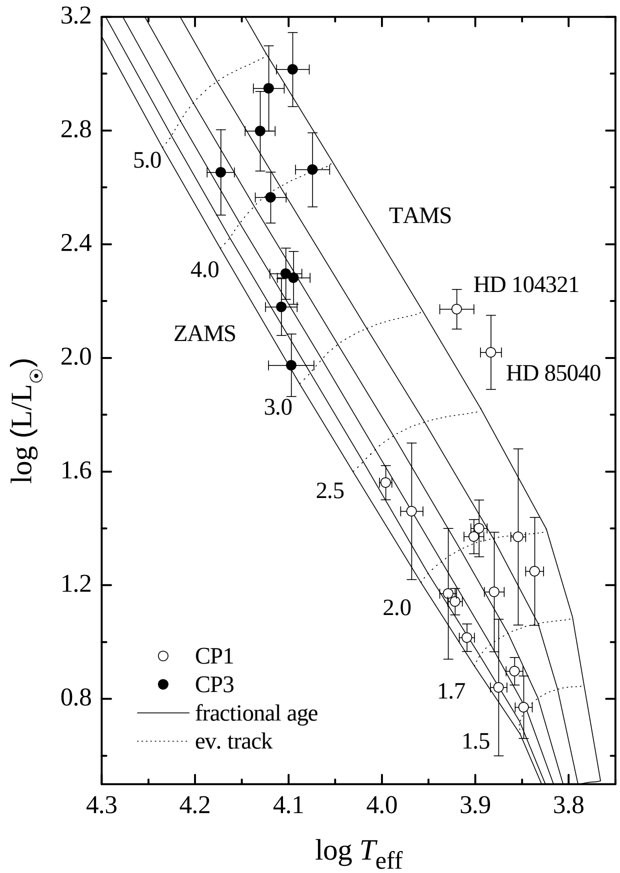

Figure 3. Hertzsprung-Russell diagram for the CP1 (open circles) and CP3 (filled circles) stars listed in Table 3 and for which we derived both $T_{\rm eff}$ and $\log L/L_{\odot}$. The solid lines represent the lines of equal fractional age. The dashed lines are the main sequence evolutionary tracks for solar metallicity (Schaller et al. 1992) used to derive the stellar masses. Two objects, HD 85040 and HD 104321, lie above the Terminal Age Main Sequence (TAMS).

deduced period of 1.8526 d is compatible with an orbit due to undetected multiplicity or γ Doradus pulsation. However, the periodogram shows numerous frequencies shorter than 1 d supporting hybrid δ Scuti - γ Doradus characteristics. HD 23607 lies just on the edge (Fig. 2) where these objects can be found.

HD 23950: This star has the highest $\upsilon \sin i$ of all objects among our variable sample with 82.5±3.8 km s^{-1}. Winzer (1974) published a period of 1.1 d which was flagged with a question mark. Our time series analysis results in a period of 3.2509 d. As described in WFN12, we calculated the equatorial velocity ($V_{\rm eq}$) from the formula of the oblique rotator model on the basis of $T_{\rm eff}$ and $\log L/L_{\odot}$. Taking the above mentioned periods, we get $V_{\rm eq}$ of ∼95 and ∼32 km s^{-1}, respectively (Fig. 5). In contrary to the shorter period, the longer period is clearly not compatible with the oblique rotator model and could be interpreted as a SPB characteristics.

HD 27628: A well known δ Scuti type pulsator (V775 Tau) and member of the Hyades (Perryman et al. 1998). The orbital period published by Griffin (2012) is twice the variability we derived from the *STEREO* data.

HD 31592, HD 39078, and HD 104321: These stars have periods between approximately one and two days, but are too hot for being γ Doradus pulsators.

HD 42066 and HD 56152: For each star, we detected two clear frequencies in the domain of the γ Doradus pulsators. However, both stars are too hot (Fig. 2), and the amplitude for HD 42066 is too large for such kind of variability. This might be a sign of long-period pulsations in close binaries which are tidally excited (Handler et al. 2002). These two stars are, therefore, very interesting targets for spectroscopic follow-up observations in order to get radial velocity data.

HD 49606: We find a period of 2.2661 d whereas in the literature values of 1.10503 and 3.35 d are published. From our periodogram, we conclude that the shorter period does not seem to be present, but there are several peaks around 3.3 d, although they are less significant than the ones listed in Table 3.

HD 122911, HD 144844, HD 202671, and HD 211838: For these objects we found at least one frequency typical for δ Scuti and one for γ Doradus type pulsation. Therefore, these objects might be hybrid pulsators.

HD 138124: With two detected clear frequencies, we conclude that this object is a γ Doradus pulsator.

HD 244698: Smalley et al. (2011) published two δ Scuti like frequencies with amplitudes of 1.35 and 1.69 mmag, respectively. Its periodogram shows also some very low amplitude frequency in the range where we find a significant period of 0.9993 d. However, the Θ value is just on the detection limit.

In order to locate the variable stars from Table 3 in the Hertzsprung-Russell (HR) diagram, we compiled Johnson UBV, Strömgren, and Geneva photometry from the General Catalogue of Photometric data (Mermilliod et al. 1997). These data were used to derive the effective temperature on the basis of the calibrations given by Netopil et al. (2008). The final $T_{\rm eff}$, listed in Table 3, is the average $T_{\rm eff}$ obtained calibrating the different colors, while the standard deviation and the number of averaged temperature values are given in parentheses. When available, we adopted the spectroscopic $T_{\rm eff}$ listed in Netopil et al. (2008), and these cases are indicated with a "99" instead of the number of averaged temperatures. Similarly to WFN12 also a spectral energy distribution (SED) fitting was performed in order to obtain an additional temperature estimate. However, no correction was applied since CP1/3 objects do not show anomalous colours. The stars, for which the latter method was the only possibility to deduce reddening, are flagged with "50" in the $T_{\rm eff}$ column of Table 3 (see WFN12 for details).

If available, parallax from the HIPPARCOS catalogue (van Leeuwen 2007) were used to determine the luminosity ($\log L/L_{\odot}$) on the basis of the Johnson V magnitude and the interstellar reddening $E(B-V)$ determined via the different photometric systems or via SED fitting, using a total-to-selective absorption ratio of $R = 3.1$. Since according to Netopil et al. (2008) the bolometric correction for CP1/3 stars do not differ from normal ones, we used the tabulated corrections listed by Flower (1996). As next step, we determined the stellar mass and fractional age (τ - fraction of main sequence lifetime completed) using the evolutionary tracks for solar metallicity given by Schaller et al. (1992).

Figure 3 shows the final HR diagram for all stars listed in Table 3 and for which we derived both $T_{\rm eff}$ and $\log L/L_{\odot}$. The two CP groups are clearly distinct according to their $T_{\rm eff}$. All, but two objects, HD 85040 and HD 104321 lie well between the ZAMS and TAMS. We have investigated the two outliers in more details.

HD 85040: Frémat et al. (2005) analysed this spectroscopic triple system using a disentangling technique to extract the individual contributions of the three components to the composite spec-

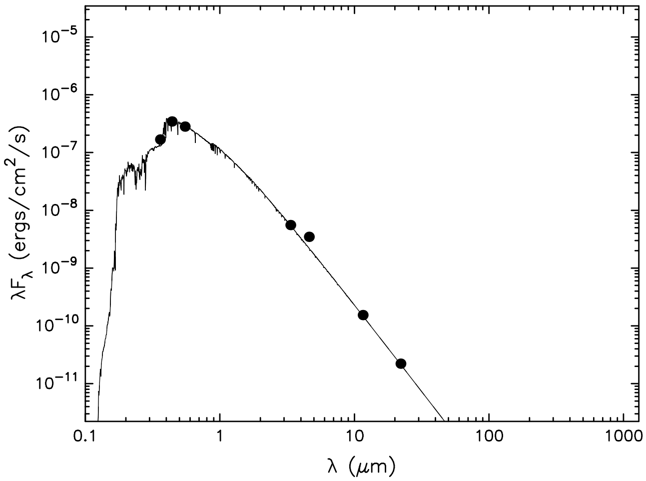

Figure 4. The spectral energy distribution of HD 104321 shows a bump at 4.6 μm larger than 3σ of the listed photometric error (Wright et al. 2010) which could be due to a cool companion.

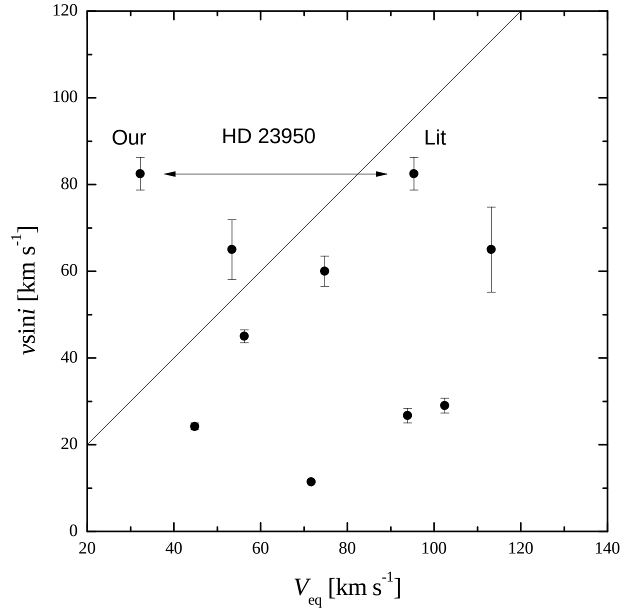

Figure 5. Comparison between the observed $\upsilon \sin i$ and the computed $V_{\rm eq}$ for the stars listed in Table 3. The continuous line is the one-to-one relationship. According to the oblique rotator model, all stars should fall below the given relation. For HD 23950 we plotted the value using our and the period from the literature.

trum. The inner binary consists of two Am components, whereas the distant third component is confirmed to be a δ Scuti star with normal chemical composition. We report the detection of three periods of which two (0.0834 and 0.0881 d) are from the pulsational component. The third one (2.0735 d) is half the orbital period. Frémat et al. (2005) estimated that all three components have almost the same effective temperature of 7500 K and equal luminosities. Taking this into account in our HR diagram, this object shifts down to the two solar mass evolutionary track.

HD 104321: This spectroscopic binary system has a mass ratio of about 0.47, $m_1 = 2.2\,{\rm M}_\odot$ and an orbital period of about 283 d (Ducati et al. 2011). Shorlin et al. (2002) derived a photometric $\log g$ of 3.51 which is compatible with our estimates. Thus, this system seems to be located close to the TAMS. In addition, we checked the SED with the tool by Robitaille et al. (2007). Figure 4 shows the flux distribution according to the photometric measurements overplotted with the corresponding stellar atmosphere model. The best fitted effective temperature of 8000 K is in perfect agreement with the estimates from all different photometric systems. At 4.6 μm, a bump exceeding 3σ of the listed photometric error, (Wright et al. 2010) can be found which might be due to the companion.

As a test for the oblique rotator model to explain the periods of the CP3 stars, we calculated the equatorial velocities $V_{\rm eq}$ from the formula published by Preston (1971):

$$V_{\rm eq} = \frac{50.6R}{P} \qquad (1)$$

where R is the stellar radius in solar units and P is the observed period in days. Since only the projected rotational velocity can be determined, all stars should fall below the given relation assuming a certain stellar radius. Besides HD 23950 (discussed above), all stars meet the specifications of the oblique rotator model.

5 CONCLUSION

We present a detailed time series analysis of photometric data for 558 CP1/3 stars obtained with the *STEREO* spacecraft. 44 stars were found to be variable, 35 of which were not previously known as such. The new variables range in brightness $4.7 < V < 11.7$ and are therefore particularly interesting for follow-up observations. Several show multiple signals indicative of hybrid δ Scuti and γ Doradus pulsation. These bright variable stars will allow for more detailed study of stellar structure and evolution. Of particular interest are the variable members of open clusters (e.g. HD 23607) where age, metallicity, luminosity and therefore mass can be more tightly constrained.

The period range of the variability we detected among the CP1 stars is compatible with that expected for δ Scuti and γ Doradus pulsators. In addition, some already known orbital periods were also photometrically detected.

For the CP3 stars, the periodicity of slowly pulsating B-type stars is in the same range as that of the known binary systems, therefore, a decision about the type of variability was not possible, and further observations are needed. However, Renson & Catalano (2001) list 16 variable CP3 stars. With our sample of 7 new ones, we significantly increase the number of known variables of this subgroup.

The identification of constant stars, within the sensitivity of *STEREO*/HI-1, is also useful for further analysis, as these stars might be constant, or variable with an amplitude below the sensitivity of *STEREO*/HI-1, or variable with a periodicity outside the 0.1-10 days range, or variable in a part of the spectrum that the *STEREO*/HI-1 is not sensitive to, or rotational variables seen pole-on. It is important to constrain the nature of constant CP1/CP3 stars to support further investigations, e.g. suggesting that future observations may require higher cadence to observe suspected δ Scuti variability, or that observations must take place over longer continuous periods to detect long-period rotational variability.

The presented sample of constant and variable CP1/3 stars could serve not only for detailed follow-up observations, but also

for the analysis of time dependent changes of pulsational and rotational periods (Breger 2009). Long time basis and continuous observations over many decades are very much needed to shed more light on pulsational characteristics of these objects (Mikulášek et al. 2011). Such bright variable stars are of great value in advancing studies of stellar structure and evolution, as these can be studied in great detail with little observational effort.

ACKNOWLEDGMENTS

The Heliospheric Imager (HI) instrument was developed by a collaboration that included the Rutherford Appleton Laboratory and the University of Birmingham, both in the United Kingdom, and the Centre Spatial de Liége (CSL), Belgium, and the US Naval Research Laboratory (NRL), Washington DC, USA. The *STEREO*/SECCHI project is an international consortium of the Naval Research Laboratory (USA), Lockheed Martin Solar and Astrophysics Lab (USA), NASA Goddard Space Flight Center (USA), Rutherford Appleton Laboratory (UK), University of Birmingham (UK), Max-Planck-Institut für Sonnensystemforschung (Germany), Centre Spatial de Liége (Belgium), Institut d'Optique Théorique et Appliquée (France) and Institut d'Astrophysique Spatiale (France). This research has made use of the Simbad database, operated at CDS, Strasbourg, France. This research has made use of version 2.31 Peranso light curve and period analysis software, maintained at CBA, Belgium Observatory http://www.cbabelgium.com. KTW acknowledges support from a STFC studentship. This work was supported by grant GA ČR P209/12/0217, the financial contributions of the Austrian Agency for International Cooperation in Education and Research (CZ-10/2012), and the Austrian Research Fund via the project FWF P22691-N16. We thank M. Hareter and O. Kochukhov for valuable discussions.

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Table 1: Basic properties of the CP1 and CP3 stars identified as constant or for which the quality of the data prevented the detection of any variability.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	$\upsilon \sin i$ km s^{-1}
HD 294	20	1.91666	1.09421	8.25	A0,NA	CP1	
HD 1169	230	4.02257	8.11554	7.60	A8-F2,NA	CP1	
HD 3644	985	9.78988	-3.99267	8.91	A0-A7,NA	CP1	
HD 4570	1230	11.91140	-4.49765	9.34	A2-F1,NA	CP1	
HD 11386	2850	28.01060	10.81060	7.70	A7-F2,NA	CP1	
HD 11636	2970	28.66000	20.80800	2.64	A4,NA	CP1	71.6(4.0/4)
HD 12869	3280	31.64140	22.64830	5.03	A1-A7,NA	CP1	15.0(7.1/2)
HD 13248	3440	32.44400	13.17580	7.72	A0,NA	CP1	
HD 14688	3680	35.63830	16.87030	6.79	A0,NA	CP1	55.0(8.3/1)
HD 15385	3870	37.30700	23.46900	6.19	A5-F1,NA	CP1	22.8(5.8/3)
HD 16956	4310	40.92120	21.14710	7.79	A2-F0,Sr	CP1	
HD 17094	4320	41.23560	10.11410	4.20	F0-F2,NA	CP1	48.3(3.0/4)
HD 17317	4360	41.86680	21.34530	8.62	A5-F0,NA	CP1	
HD 18769	4690	45.47560	26.46240	5.91	A2-A9,NA	CP1	46.5(7.1/2)
HD 19963	4940	48.22670	11.13260	7.96	A0,NA	CP1	
HD 21933	5520	53.14980	9.37344	5.75	B8,Hg,Mn	CP3?	90.0(8.5/2)
HD 22538	5730	54.54560	19.36040	7.71	A3-F0,NA	CP1	
HD 22615	5760	54.75020	20.91580	6.49	A3-A8,NA	CP1	29.0(5.7/2)
HD 22767	5810	55.08980	21.40570	7.20	A0-F0,NA	CP1	
HD 23194	5890	56.00110	24.55700	8.07	A4-A7,NA	CP1	20.0(3.0/1)
HD 23610	6053	56.84540	22.92210	8.20	A0,NA	CP1	
HD 23631	6060	56.85170	23.91470	7.30	A0-A3,NA	CP1	20.0(3.0/1)
HD 23791	6087	57.18290	23.25980	8.38	A7-F0,NA	CP1?	85.0(12.8/1)
HD 26063	6620	62.08600	19.73760	7.74	A3-A7,NA	CP1	
HD 27749	7110	65.85440	16.77730	5.63	A1-F4,NA	CP1	13.3(0.8/4)
HD 27962	7160	66.37200	17.92840	4.31	A1-A4,NA	CP1	14.6(0.4/5)
HD 28226	7200	67.00330	21.61990	5.71	A4-F2,NA	CP1	91.5(9.5/2)
HD 28355	7270	67.20900	13.04760	5.01	A5-F1,NA	CP1	99.0(7.1/2)
HD 28527	7324	67.64010	16.19400	4.77	A5-F0,NA	CP1?	72.5(7.4/2)
HD 28546	7340	67.66200	15.69190	5.46	A5-F2,NA	CP1	30.9(1.6/3)
HD 29193	7480	69.14460	19.76000	7.35	A3-F2,NA	CP1	
HD 29479	7550	69.78840	15.79990	5.08	A3-A9,NA	CP1	56.5(7.1/2)
HD 29589	7600	70.01420	12.19760	5.44	B8,Hg,Mn	CP3	70.0(7.4/2)
HD 30453	7860	72.32950	32.58820	5.83	A6-F2,NA	CP1	16.0(9.7/4)
HD 31373	8040	73.95900	15.04030	5.78	B8,Hg,Mn	CP3	85.0(7.4/2)
HD 32448	8260	75.97200	15.65250	10.02	A2,NA	CP1?	
HD 32428	8240	76.15380	32.32030	6.62	A4-F0,NA	CP1	71.5(7.1/2)
HD 32642	8330	76.38380	19.80670	6.44	A5,NA	CP1	54.0(7.1/2)
HD 33959	8660	78.85160	32.68760	5.00	A6-F0,dD	CP1?	24.5(1.3/5)
HD 34384	8750	79.56410	28.78000	7.29	A3-F4,NA	CP1	
HD 242351	8762	79.65120	33.06520	11.20	A0,NA	CP1?	
AAO+23 10	8868	80.16820	23.57990	11.39	A0,NA	CP1?	
HD 242717	8862	80.25450	32.08940	10.50	A3,NA	CP1?	
HD 242775	8875	80.32650	30.75600	10.80	A0,NA	CP1?	
HD 34876	8909	80.52730	32.74530	9.50	A0,NA	CP1?	
HD 242938	8932	80.62620	29.26350	9.49	A5,NA	CP1?	
HD 35035	8950	80.75590	28.46890	7.56	A3-F2,NA	CP1	
HD 243008	8956	80.77540	28.85380	10.20	A5,NA	CP1?	
HD 243093	8972	80.92450	32.11390	9.71	A5,NA	CP1?	
HD 243112	8974	80.93100	30.37200	10.40	A2,NA	CP1?	
HD 243222	8984	81.05510	26.75710	9.88	A3,NA	CP1?	
HD 35236	8988	81.19980	33.34660	9.22	A2,NA	CP1?	
HD 243279	8999	81.20610	31.02560	11.80	A2,NA	CP1?	
HD 243309	9008	81.25280	29.95720	9.91	A2,NA	CP1?	
HD 243392	9035	81.33700	30.37340	11.60	A3-F,NA	CP1?	
HD 243394	9049	81.35990	29.64240	10.28	A5,NA	CP1?	
HD 243483	9062	81.45890	27.46280	10.40	A5,NA	CP1?	
HD 243428	9061	81.46640	31.45120	11.80	A0,NA	CP1?	
HD 243407	9063	81.48110	33.10750	10.60	A1,NA	CP1?	
HD 243479	9072	81.53800	32.14700	10.60	A0,NA	CP1?	
HD 35497	9110	81.57300	28.60750	1.68	B8,Cr,Mn	CP3?	66.3(5.2/3)
HD 35531	9144	81.72470	32.54750	9.24	A2,NA	CP1?	
HD 243643	9165	81.76320	30.80280	10.80	A0,NA	CP1?	
HD 243665	9175	81.80590	30.76040	10.80	B8,NA	CP1?	
HD 243745	9208	81.93350	30.95720	11.10	A1,NA	CP1?	
HD 35654	9204	81.94090	32.04780	9.34	A2,NA	CP1?	
HD 243848	9233	82.00130	26.01770	10.50	A3,NA	CP1?	
HD 243860	9235	82.09630	32.79620	10.60	A0,NA	CP1?	
HD 243875	9237	82.11310	30.28780	11.60	A2,NA	CP1?	
HD 243991	9248	82.25330	27.83730	10.40	A0,NA	CP1?	
AAO+24 48	9265	82.29360	24.64510	11.28	A2,NA	CP1?	
HD 244020	9262	82.36610	32.50770	10.50	A7,NA	CP1?	
HD 244045	9263	82.37810	31.96150	10.60	A0,NA	CP1?	
HD 244118	9271	82.46430	28.93220	10.60	A0,NA	CP1?	
AAO+29 97	9269	82.46930	29.74360	11.89	A3,NA	CP1?	
HD 244112	9267	82.49640	32.75890	10.70	A0,NA	CP1?	
HD 244278	9339	82.65200	24.81670	9.63	A1,NA	CP1?	
HD 244237	9331	82.66770	31.34610	11.90	A3,NA	CP1?	

Table 1: continued.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	$\upsilon \sin i$ km s^{-1}
AAO+29 109	9343	82.72760	29.24570	10.90	A0,NA	CP1?	
AAO+23 47	9349	82.76480	23.86910	11.19	A3,NA	CP1?	
AAO+24 53	9352	82.78490	24.62590	11.20	A2,NA	CP1?	
HD 244307	9346	82.79540	30.06030	11.80	A2,NA	CP1?	
HD 244327	9347	82.79870	30.41970	11.20	A5-F,NA	CP1?	
HD 244394	9356	82.86360	27.48870	10.60	A1,NA	CP1?	
AAO+27 66	9372	83.00230	27.94600	11.64	A0,NA	CP1?	
HD 244665	9428	83.23000	23.42550	10.43	A1,NA	CP1?	
HD 244597	9413	83.24630	33.37890	11.40	A5-F,NA	CP1?	
AAO+28 103	9425	83.25170	28.38010	11.38	A0,NA	CP1?	
HD 244641	9426	83.29070	31.11010	10.20	A0,NA	CP1?	
HD 244708	9456	83.36130	29.23570	9.88	A2,NA	CP1?	
HD 36484	9430	83.36420	32.80120	6.47	A1-A7,NA	CP1	
HD 36589	9520	83.41180	20.47420	6.18	B7,NA	CP3	95.0(9.5/2)
HD 244810	9534	83.57260	31.52330	10.40	A3,NA	CP1?	
HD 244917	9565	83.64190	27.15080	10.70	A5,NA	CP1?	
HD 36681	9581	83.71980	31.63570	9.48	A2,NA	CP1?	
HD 244937	9585	83.72600	30.05770	9.85	A0,NA	CP1?	
HD 244936	9595	83.75480	31.39320	10.31	A0,NA	CP1?	
HD 245156	9665	83.91040	23.07790	10.80	A2,NA	CP1?	
HD 245063	9653	83.94640	32.54240	9.86	A3,NA	CP1?	
HD 245290	9796	84.11080	24.16830	9.86	A2,NA	CP1?	
HD 245303	9812	84.19530	33.21500	10.70	A3,NA	CP1?	
HD 245357	9855	84.21320	24.27750	10.30	A0,NA	CP1?	
HD 245398	9863	84.25060	24.14450	10.50	A3,NA	CP1?	
HD 245422	9895	84.35110	28.06150	11.00	A0,NA	CP1?	
HD 245444	9905	84.37460	28.38600	10.40	A2,NA	CP1?	
HD 245602	9956	84.53310	27.80230	10.00	A0,NA	CP1?	
HD 245707	9996	84.70940	30.64360	10.80	A1,NA	CP1?	
HD 245806	10018	84.87340	33.27330	10.70	A3,NA	CP1?	
AAO+26 125	10045	84.90100	26.04490	11.39	A1,NA	CP1?	
HD 245972	10055	85.02260	30.23620	9.67	A2,NA	CP1?	
HD 37519	10100	85.14960	31.35820	6.03	B8,Hg	CP3?	225.0(20.7/2)
HD 246315	10172	85.42110	24.29630	9.44	A4,NA	CP1?	
AAO+24 144	10176	85.48130	24.96590	11.66	A1,NA	CP1?	
AAO+27 132	10206	85.61270	27.04380	11.19	A5,NA	CP1?	
HD 246437	10204	85.67200	31.97580	10.19	A0,NA	CP1?	
HD 246511	10215	85.70360	30.50170	10.90	A1,NA	CP1?	
HD 246561	10217	85.71470	29.13490	10.70	A3,NA	CP1?	
HD 246557	10223	85.79600	32.28320	9.35	A2,NA	CP1?	
HD 246688	10229	85.82750	25.18350	10.74	A1,NA	CP1?	
HD 246645	10228	85.86110	28.36260	11.30	A0,NA	CP1?	
HD 246618	10225	85.86940	33.28450	9.60	A5,NA	CP1?	
HD 246640	10226	85.88960	32.76820	11.00	A0,NA	CP1?	
HD 38032	10237	86.04900	33.10010	7.76	A2,NA	CP1?	
HD 246858	10242	86.15760	32.29790	11.30	A5,NA	CP1?	
HD 38162	10255	86.21030	25.75770	8.31	A0,NA	CP1	
HD 247081	10301	86.34130	27.16140	10.40	A3,NA	CP1?	
HD 247157	10303	86.35770	24.07930	10.11	A5,NA	CP1?	
HD 247209	10315	86.55050	31.38780	9.40	B9,NA	CP1?	
HD 247303	10321	86.64790	31.96550	10.70	A2,NA	CP1?	
AAO+30 232	10324	86.66660	30.67430	11.26	A0,NA	CP1?	
HD 38478	10350	86.68960	15.82250	5.99	B8,Hg,Mn	CP3	62.5(5.8/2)
AAO+24 196	10335	86.74030	24.52530	12.10	A5,NA	CP1?	
HD 38573	10370	86.91020	20.94080	7.40	A-F,NA	CP1	
AAO+27 188	10371	86.96450	27.20110	11.88	A2,NA	CP1?	
HD 247577	10364	87.00330	32.42450	10.80	A0,NA	CP1?	
AAO+27 190	10377	87.00680	27.78450	11.69	A1,NA	CP1?	
HD 247634	10383	87.05080	29.76800	9.72	A7,NA	CP1?	
AAO+27 196	10395	87.10910	27.26460	11.30	A0,NA	CP1?	
BD+29 1003	10397	87.15820	29.44670	11.50	A3,NA	CP1?	
AAO+25 209	10421	87.23630	25.81960	11.10	A2,NA	CP1?	
HD 247800	10417	87.24920	28.25230	10.00	A5,NA	CP1?	
HD 247837	10423	87.27000	26.25600	10.60	A1,NA	CP1?	
HD 247961	10431	87.39780	25.70410	9.62	A2,NA	CP1?	
HD 247988	10437	87.46870	28.21120	10.50	A0,NA	CP1?	
HD 247986	10435	87.48910	30.38140	9.25	A3,NA	CP1?	
HD 248069	10448	87.54940	26.71250	10.70	A0,NA	CP1?	
AAO+28 255	10445	87.56630	28.51760	10.80	A4,NA	CP1?	
HD 38876	10443	87.60440	32.88060	8.85	A3,NA	CP1?	
HD 248208	10478	87.71580	29.17630	10.80	A2,NA	CP1?	
AAO+31 299	10472	87.72580	31.73100	10.94	A3,NA	CP1?	
HD 248171	10473	87.74700	33.01130	10.50	A3,NA	CP1?	
HD 248207	10479	87.76920	32.60210	11.20	A7,NA	CP1?	
AAO+27 225	10484	87.79480	27.64790	11.12	A3,NA	CP1?	
HD 248327	10502	87.82770	23.69930	10.20	A5,NA	CP1?	
HD 248246	10483	87.84670	33.09820	10.10	A2,NA	CP1?	
HD 248321	10492	87.87370	30.61660	9.65	A2,NA	CP1?	
HD 248370	10506	87.94580	29.82460	10.60	A1,NA	CP1?	
AAO+30 280	10505	87.95220	30.40750	10.90	B9,NA	CP1?	

Table 1: continued.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	$\upsilon \sin i$ km s^{-1}
AAO+28 289	10517	88.08590	28.86090	11.40	A0,NA	CP1?	
HD 39226	10522	88.08930	28.63240	8.82	A2,NA	CP1	
HD 248526	10532	88.14970	29.60690	10.70	A2,NA	CP1?	
AAO+27 236	10536	88.15810	27.82300	11.41	A2,NA	CP1?	
HD 248524	10528	88.15810	31.66430	10.40	A5,NA	CP1?	
AAO+28 297	10538	88.17830	28.77130	11.00	A3,NA	CP1?	
HD 248577	10554	88.23590	30.20290	11.10	A0,NA	CP1?	
HD 248672	10574	88.25080	23.99990	10.50	A0,NA	CP1?	
HD 248668	10576	88.27570	26.05080	9.33	A1,NA	CP1?	
AAO+30 296	10564	88.28900	30.21080	11.19	B9,NA	CP1?	
HD 248635	10569	88.29830	29.34550	10.30	A2,NA	CP1?	
AAO+24 272	10586	88.32620	24.78450	11.01	A5,NA	CP1?	
HD 248688	10578	88.39620	33.23240	10.80	A2,NA	CP1?	
HD 248765	10592	88.45320	29.90040	10.80	B9,Sr	CP1?	
AAO+29 299	10597	88.50130	29.02010	10.80	B8,Si	CP1?	
AAO+27 256	10601	88.52370	27.06360	10.81	A0,NA	CP1?	
HD 248874	10602	88.59480	30.90050	10.10	A0,NA	CP1?	
AAO+27 261	10606	88.61350	27.72350	10.82	A3,NA	CP1?	
HD 248904	10605	88.63680	30.46140	10.00	A0,NA	CP1?	
HD 248945	10608	88.64320	27.33380	10.10	A2,NA	CP1?	
HD 249105	10626	88.85610	26.17690	9.39	A0,NA	CP1?	
HD 249155	10635	88.97170	27.97580	9.51	A0,NA	CP1?	
HD 249278	10641	89.12000	29.99230	10.25	A5,NA	CP1?	
HD 249456	10667	89.37270	31.68520	9.53	A4,NA	CP1?	
AAO+28 366	10687	89.53450	28.88890	11.46	A0,NA	CP1?	
HD 40163	10711	89.60020	29.62710	7.90	A0,NA	CP1	
HD 249647	10693	89.60810	32.73910	10.70	A0,NA	CP1?	
HD 249697	10723	89.63060	27.04280	10.40	A2,NA	CP1?	
HD 249808	10748	89.71960	24.09020	10.60	A3,NA	CP1?	
HD 40366	10769	89.90260	30.00510	8.47	A3,NA	CP1?	
HD 249933	10795	89.91140	27.34900	10.50	A5,NA	CP1?	
HD 249890	10772	89.94080	32.42260	10.05	A5,NA	CP1?	
HD 249962	10797	89.97910	30.18600	9.30	A5,NA	CP1?	
AAO+26 309	10811	90.06110	26.57860	11.04	A0,NA	CP1?	
AAO+28 409	10855	90.27330	28.78510	10.96	A0,NA	CP1?	
BD+29 1073	10853	90.28820	29.87360	12.10	B9,NA	CP1?	
AAO+29 398	10862	90.30570	29.46830	11.26	A3,NA	CP1?	
HD 250237	10859	90.33760	32.96390	10.00	A0,NA	CP1?	
HD 250259	10864	90.35450	32.18740	9.80	A3,NA	CP1?	
HD 250260	10866	90.35850	31.91930	9.56	A3,NA	CP1?	
HD 40788	10913	90.53920	23.92980	9.04	A2,NA	CP1?	
HD 250513	10914	90.62740	30.92320	9.97	A2,NA	CP1?	
AAO+28 439	10916	90.63490	28.01450	11.51	A2,NA	CP1?	
HD 250490	10912	90.63520	33.41100	9.75	A1,NA	CP1?	
HD 250636	10925	90.75590	30.89590	10.30	A2,NA	CP1?	
HD 250635	10927	90.76260	31.25420	10.30	A0,NA	CP1?	
HD 250660	10929	90.76850	29.78060	9.84	A3,NA	CP1?	
HD 250680	10933	90.83350	33.46490	9.73	A2,NA	CP1?	
HD 250681	10937	90.83780	32.26110	9.83	A3,NA	CP1?	
HD 250786	10961	90.86510	23.81060	10.40	A5,NA	CP1?	
AAO+29 440	10966	90.96470	29.23310	11.00	A3,NA	CP1?	
HD 250990	11004	91.10220	25.63630	10.40	A2,NA	CP1?	
HD 251038	11007	91.13580	24.99050	10.67	A0,NA	CP1	
HD 251010	11005	91.14250	28.65460	10.43	A2,NA	CP1?	
HD 251095	11022	91.26410	30.92290	10.80	A2,NA	CP1?	
HD 251143	11025	91.28760	29.58320	9.90	A3,NA	CP1?	
HD 251227	11032	91.35940	29.03030	10.26	A3,NA	CP1?	
HD 251228	11035	91.38570	27.97820	10.80	A2,NA	CP1?	
HD 251226	11033	91.40020	31.85560	10.60	A5,NA	CP1?	
HD 251522	11095	91.65080	29.51210	10.80	A2,NA	CP1?	
AAO+28 524	11098	91.67520	28.55120	11.37	A3,NA	CP1?	
HD 251577	11102	91.70450	29.56190	10.18	A5,NA	CP1?	
HD 41525	11109	91.79700	32.20000	8.46	A5,NA	CP1?	
AAO+30 470	11117	91.94550	30.32630	11.38	A1,NA	CP1?	
HD 251836	11118	91.97830	31.76660	10.90	B9,NA	CP1?	
HD 251966	11132	92.02170	29.05830	9.13	A1,NA	CP1?	
HD 251912	11123	92.02600	31.96090	9.47	A3,NA	CP1?	
HD 251963	11135	92.10600	33.29790	10.37	A7,NA	CP1?	
HD 252040	11147	92.14480	30.39640	10.60	A3,NA	CP1?	
HD 252066	11152	92.19190	33.43690	10.30	A3,NA	CP1?	
AAO+29 502	11182	92.29200	29.74080	12.12	A3,NA	CP1?	
HD 252679	11274	92.52620	14.26280	9.33	A3-F2,NA	CP1	
HD 42155	11265	92.65780	33.44030	9.21	A2,NA	CP1?	
HD 252700	11275	92.66560	24.94260	10.60	A2,NA	CP1?	
HD 42954	11460	93.61910	17.90640	5.88	A5-A9,NA	CP1	32.5(5.7/2)
GSC 01314-00887	11473	93.63360	16.11460	11.00	A3-F2,NA	CP1	
HD 43509	11560	94.37080	20.80740	8.90	A2,NA	CP1	
HD 43682	11590	94.54530	15.95210	8.43	A4-F0,NA	CP1	
GSC 00744-00733	11876	96.18200	14.32540	11.00	A0-F5,NA	CP1	
HD 46825	12570	99.01830	13.69400	7.23	A2-F0,NA	CP1	

Table 1: continued.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	$\upsilon \sin i$ km s^{-1}
HD 46796	12550	99.03110	19.55850	8.22	A0,NA	CP1	
HD 50635	13910	103.66100	13.17780	4.70	A8-F0,NA	CP1?	147.5(10.5/4)
HD 52828	14490	105.87400	19.22210	7.53	A0,NA	CP1	
HD 55822	15190	108.84400	19.06240	8.53	A3-F5,NA	CP1	
HD 60178J	16440	113.65000	31.88860	1.59	A0,Sr,Eu	CP1	25.0(0.6/3)
HD 68099	18820	122.81900	9.82123	6.08	B8,Mn,Hg	CP3	60.0(5.3/2)
HD 68725	19060	123.61300	20.70780	6.95	F2-F6,NA	CP1	35.0(5.3/1)
HD 70318	19404	125.47500	17.60110	8.20	A3,NA	CP1	
HD 70826	19550	126.20500	20.15300	7.38	A3-F8,NA	CP1	5.0(0.8/1)
HD 71030	19630	126.45800	17.04630	6.10	F3,NA	CP1?	9.0(2.1/2)
HD 72825	20190	128.92999	20.33030	8.27	A0,NA	CP1?	
HD 72942	20220	129.07300	20.34150	7.48	A2,NA	CP1?	60.0(9.0/1)
HD 73135	20320	129.32600	18.87000	8.57	A2,NA	CP1	
HD 73174	20340	129.40401	19.73290	7.76	A3-F1,NA	CP1	11.1(0.8/2)
HD 73574	20413	129.92799	20.08620	7.75	A6-F0,NA	CP1	105.0(15.8/1)
HD 73618	20450	129.98500	19.55300	7.30	A3-F0,NA	CP1	52.0(12.0/2)
HD 73619	20460	129.99100	19.54150	7.52	A3-F2,NA	CP1	73.1(0.4/2)
HD 73711	20520	130.07500	19.53200	7.51	A2-F1,NA	CP1	60.5(5.8/2)
HD 73709	20510	130.08600	19.68670	7.68	A3-F1,NA	CP1	19.6(0.2/2)
HD 73818	20570	130.23700	19.93490	8.69	A4-F1,NA	CP1	85.0(12.8/1)
HD 74656	20880	131.44400	19.04950	8.04	A0,NA	CP1	
GSC 00813-02294	21160	132.76500	11.75080	10.90	A4-F1,NA	CP1	
GSC 00814-01911	21170	132.86000	11.73080	11.30	A2-A7,NA	CP1	
HD 76310	21390	133.99600	21.69220	8.54	A3-A9,NA	CP1	
HD 76756	21640	134.62199	11.85770	4.25	A3-F1,NA	CP1	67.0(5.8/3)
HD 76924	21700	134.99100	26.43450	6.87	A2,NA	CP1	
HD 78316	22170	136.93700	10.66820	5.23	B8,Mn,Hg	CP3	9.4(0.0/7)
HR 3649	22420	137.98200	5.46863	6.35	A9,dD	CP1?	
HD 81581	23180	141.70100	14.49400	7.79	A4-F1,NA	CP1	
HD 83808	23896	145.28799	9.89231	3.53	A4,NA	CP1	13.0(0.1/2)
HD 85216	24340	147.72099	19.32350	8.39	A2-F3,NA	CP1	
HD 85931	24530	148.93300	20.97180	8.96	A3-A8,NA	CP1	
HD 86516	24750	149.86700	21.32150	6.74	A2,NA	CP1	
BD+21 2142	24800	150.33600	20.99750	9.42	A,NA	CP1	
HD 87094	24903	150.72200	1.48585	8.67	A2-F2,NA	CP1	
HD 87500	25104	151.42101	15.75750	6.37	F0,dD	CP1	177.2(12.0/4)
HD 88021	25190	152.33200	20.33240	6.70	A2-F,NA	CP1	
HD 90011	25870	155.86400	2.25390	8.69	F0-F3,NA	CP1	
HD 92604	26730	160.42300	10.73950	7.83	A6-F1,NA	CP1	
HD 95899	27620	165.99600	3.63869	7.28	A6-F4,dD?	CP1	
HD 97244	28046	167.93201	14.40020	6.30	A5-A7,NA	CP1?	80.7(5.8/3)
HD 98575	28390	170.13300	-2.89817	9.10	A1-F2,NA	CP1	
HD 103313	29796	178.45900	0.55212	6.31	A7-F1,NA	CP1	66.8(3.6/6)
BD+03 2582	30080	179.86501	2.43725	10.80	A3,NA	CP1?	
HD 104788	30320	181.00101	-10.29610	6.60	A2-F1,NA	CP1?	
HD 104817	30340	181.05400	1.46204	7.69	A2-A7,NA	CP1	
HD 105281	30440	181.84200	-10.73950	8.23	A2-F3,NA	CP1	
HD 105702	30590	182.51401	5.80701	5.71	F0-F6,NA	CP1	33.0(10.0/1)
HD 105967	30630	182.91800	4.05591	6.93	A2-F0,NA	CP1	
HD 106384	30800	183.56400	-5.71660	6.56	A5-F2,NA	CP1	
HD 107259	31060	184.97600	-0.66680	3.89	A4,NA	CP1	13.7(0.5/3)
HD 107923	31280	186.04300	-1.24352	9.67	A0,NA	CP1?	
HD 109005	31630	187.90199	-11.07230	7.90	A5-F2,NA	CP1	
HD 115488	33360	199.37399	-0.67606	6.35	A7,NA	CP1?	130.0(7.1/2)
HD 116275	33553	200.69000	-13.18650	7.77	A2,NA	CP1	
HD 116542	33610	201.07700	1.39973	7.36	A3,NA	CP1	
HD 117986	34015	203.60100	-20.45810	9.06	A1-F3,NA	CP1	
HD 118209	34076	203.89200	-14.83010	9.43	A3-F3,NA	CP1	
HD 118583	34265	204.53999	-19.18870	8.48	A1-F0,NA	CP1	
HD 121686	34993	209.31100	-18.44690	9.73	A1-A8,NA	CP1	
HD 121698	34996	209.35899	-22.31480	9.62	A4-F2,NA	CP1	
HD 124218	35555	213.15100	-19.21710	9.62	A2-F2,NA	CP1	
HD 124915	35713	214.08900	-6.62154	6.44	A5-F1,NA	CP1	74.0(7.1/2)
HD 125296	35776	214.69701	-12.58350	9.66	A4-F0,NA	CP1	
HD 125337	35800	214.77699	-13.37110	4.52	A2-A7,NA	CP1	28.0(2.7/2)
HD 125379	35820	214.85699	-18.52360	7.30	A3-F2,NA	CP1	
HD 126703	36084	216.90500	-20.81060	9.13	A1-F3,NA	CP1	
HD 127860	36335	218.60800	-25.27840	9.35	A2-A8,NA	CP1	
HD 128258	36464	219.10800	-22.73420	9.72	A2-F2,NA	CP1	
HD 128945	36716	220.10100	-20.84800	9.87	A2-F2,NA	CP1	
HD 129098	36777	220.35400	-25.83840	9.81	A5-F4,NA	CP1	
HD 129394	36884	220.67900	-12.59800	9.54	A1-A9,NA	CP1	
HD 129667	36966	221.05200	-15.72250	9.35	A4-F3,NA	CP1	
HD 130841	37210	222.72000	-16.04180	2.75	A3-A7,NA	CP1	79.7(6.4/3)
HD 132054	37494	224.39500	-17.93060	9.64	A3-A9,NA	CP1	
HD 135232	38377	228.70000	-25.19320	10.07	A4-F2,NA	CP1	
HD 135875	38636	229.52200	-19.50220	9.41	A1-F1,NA	CP1	
HD 136032	38710	229.78799	-24.26500	7.20	A5-F2,NA	CP1	
HD 136760	38864	230.74100	-19.31860	9.84	A3,NA	CP1?	
HD 137034	38907	231.14000	-24.37080	8.63	A4-A9,NA	CP1	

Table 1: continued.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	$\upsilon \sin i$ km s^{-1}
HD 138105	39300	232.65100	-20.72860	6.20	A3-A8,NA	CP1	25.5(7.1/2)
HD 138791	39540	233.83600	-29.05050	7.69	A1-F0,NA	CP1	
HD 140417	39910	236.01801	-15.67280	5.42	A5-F2,NA	CP1	107.7(8.9/3)
HD 140419	39913	236.07401	-24.39540	7.58	A1-F0,NA	CP1	
HD 140722	39987	236.55400	-28.06150	6.51	A7-F2,NA	CP1	58.0(10.0/1)
HD 141445	40150	237.55901	-29.42270	9.63	A1-F1,NA	CP1	
HD 141595	40204	237.63100	-17.72480	10.60	A4-F1,NA	CP1	
HD 141976	40280	238.25700	-30.25120	9.43	A6,NA	CP1?	
HD 143115	40550	239.91499	-30.08330	7.18	A2-F0,NA	CP1	
HD 143472	40618	240.36099	-25.19850	7.77	A2-F2,NA	CP1	
HD 143786	40726	240.80800	-24.66410	8.53	A1-A8,NA	CP1	
HD 145877	41296	243.45500	-16.30930	9.92	A2-F0,NA	CP1	
HD 145857	41293	243.51700	-24.16520	9.15	A1-A8,NA	CP1	
HD 146120	41325	243.86900	-21.58880	9.02	A2-F2,NA	CP1	
HD 146236	41340	244.09100	-28.16400	9.10	A1-F2,NA	CP1	
HD 147117	41565	245.08400	-12.80930	10.12	A1-F2,NA	CP1	
HD 147103	41550	245.12601	-20.11770	7.56	B9-A2,NA	CP1?	
HD 148655	42040	247.67500	-29.48310	7.78	A2-F2,NA	CP1	
HD 150018	42436	249.75500	-18.52450	9.18	A9-F2,NA	CP1?	
HD 150365	42520	250.32800	-18.05950	6.68	A5-F2,NA	CP1	
HD 151154	42740	251.72000	-31.45310	7.78	A0-F0,NA	CP1	
HD 151533	42860	252.29601	-30.78090	8.92	F5,NA	CP1?	
HD 151659	42924	252.43500	-24.64070	6.74	A1-A7,NA	CP1	
HD 151867	42960	252.83501	-30.08080	8.25	A1-F0,NA	CP1	
HD 189891	52665	300.73199	-15.18720	9.01	A1-A7,NA	CP1	
HD 191110	53190	302.13000	-10.06260	6.18	A0,Hg	CP3	0.0(0.1/2)
HD 191404	53304	302.53201	-11.35680	9.20	A1-F2,NA	CP1	
HD 192465	53617	303.85100	-9.01127	9.50	A1-F2,NA	CP1?	
HD 192626	53704	304.03299	-11.04530	10.30	A3-F3,NA	CP1	
HD 192721	53787	304.21201	-14.19730	9.17	A2-F2,NA	CP1	
HD 192840	53816	304.37100	-13.96070	8.74	A1-F0,NA	CP1	
HD 192972	53873	304.59399	-14.84870	8.55	A4-F3,NA	CP1	
HD 193151	53900	304.85699	-20.95080	6.85	A9,NA	CP1	
HD 194345	54227	306.37799	-12.05980	9.41	A2-F0,NA	CP1	
HD 195278	54429	307.65201	-8.30919	9.74	A3-F2,NA	CP1	
HD 195497	54484	308.11600	-23.96610	8.93	A1-F2,NA	CP1	
HD 195811	54577	308.54300	-19.28790	8.41	A3-F2,NA	CP1	
HD 196100	54656	308.91501	-17.22820	9.11	A3-A9,NA	CP1	
HD 196166	54680	309.13101	-26.54130	9.24	A4-F0,NA	CP1	
HD 197182	55013	310.60300	-7.91345	9.96	A0-F0,NA	CP1	
HD 197889	55100	311.83401	-26.41520	7.27	A1-F0,NA	CP1	
HD 198040	55136	312.01700	-9.29624	8.99	A1-A8,NA	CP1	
HD 198230	55194	312.33401	-13.04260	9.23	A1-F2,NA	CP1	
HD 198409	55233	312.72101	-25.26970	9.94	A2-F3,NA	CP1?	
HD 198743	55320	313.16299	-8.98331	4.72	A3-F3,NA	CP1	52.1(3.0/5)
HD 199144	55436	313.93500	-18.58130	8.09	A0-F0,NA	CP1	
HD 200052	55700	315.43900	-26.88100	6.04	A2-A7,NA	CP1	35.0(10.0/1)
HD 200277	55777	315.73099	-14.38300	9.52	A1-F3,NA	CP1	
HD 200517	55895	316.04901	-11.95970	9.75	A2-A9,NA	CP1	
HD 201038	56080	316.85901	-8.23490	6.90	A2-F1,NA	CP1	
HD 202149	56350	318.57001	-10.60540	6.76	B9,Hg	CP3	37.5(3.7/2)
HD 202152	56360	318.69000	-25.91130	8.10	A3-F1,NA	CP1	
HD 202606	56436	319.30600	-13.27900	6.41	A1-A3,NA	CP1	40.0(10.0/1)
HD 203313	56587	320.52701	-24.22590	9.36	A2-F1,NA	CP1	
HD 203683	56710	320.99200	-3.36455	10.05	A0,Si	CP1?	
HD 203653	56700	321.06201	-25.56120	7.94	A0-A9,NA	CP1	
HD 203843	56760	321.21500	-3.39835	6.39	A9,NA	CP1	
HD 203845	56763	321.29401	-16.40210	9.34	A2-A6,NA	CP1	
HD 204218	56885	321.85199	-12.25160	9.03	A1-F2,NA	CP1	
HD 205244	57190	323.53201	-4.36816	6.69	A6-A9,NA	CP1	
HD 205543	57266	324.11200	-16.71050	8.83	A1-F0,NA	CP1	
HD 205607	57284	324.18100	-13.45930	8.68	A3-A9,NA	CP1	
HD 206561	57490	325.76801	-14.39970	5.88	A4-F2,NA	CP1	81.0(10.0/1)
HD 206546	57480	325.80600	-19.62100	6.22	A2-F0,NA	CP1	34.0(7.1/2)
HD 206677	57520	326.00400	-14.74940	5.96	A4-F0,NA	CP1?	118.0(5.2/3)
HD 207439	57716	327.33301	-18.38650	7.55	A2-A9,NA	CP1?	
HD 207503	57730	327.42099	-12.72290	6.31	A2-F2,NA	CP1	51.5(3.2/2)
HD 208208	57886	328.75800	-11.97020	8.06	A1-F4,NA	CP1	
HD 209475	58284	331.04099	-21.78000	7.86	A2-F0,NA	CP1	
HD 209711	58360	331.34900	0.26114	7.57	A3,NA	CP1?	
HD 212144	58865	335.59000	-18.27730	9.90	A4-F2,NA	CP1	
HD 212623	58990	336.43900	-0.83434	9.27	A0,NA	CP1	105.0(15.8/1)
HD 212797	59027	336.79999	-19.44320	8.66	A2-F2,NA	CP1	
HD 213236	59120	337.57199	-14.58570	6.34	B8,Mn	CP3	40.0(5.8/3)
HD 213464	59200	337.92200	-10.90560	6.38	A7-F2,NA	CP1	30.0(10.0/1)
HD 215413	59510	341.26401	0.28548	10.50	A2,NA	CP1?	
HD 215430	59520	341.34100	-14.20960	9.13	A2-F2,NA	CP1	
HD 215875	59625	342.14899	-17.25610	8.24	A1-F0,NA	CP1	
HD 219200	60250	348.52701	-2.63499	7.20	A2-F2,NA	CP1	
HD 221675	60750	353.53799	-1.24757	5.89	A3-F1,NA	CP1	67.5(6.9/2)

Table 1: continued.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	$\upsilon \sin i$ $\mathrm{km\,s^{-1}}$
HD 222377	60980	354.97900	9.67730	5.98	A2-F0,NA	CP1	

Table 2: Basic properties of the CP1 and CP3 stars identified as constant or probably constant after the individualised analysis. The relevant references are given at the end of Table 3.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	Period days	σ_{period} days	Analysis remarks	Literature period	$\upsilon \sin i$ km s^{-1}
HD 1651	355	5.20745	-0.87109	9.28	A6-A9,NA	CP1	1.3231	0.0004	W	S11:0.066	
BD+06 63	720	8.06457	6.92384	9.91	A0,NA	CP1			B		
HD 9862	2430	24.10950	3.78577	8.66	A2,NA	CP1			C		
HD 23325	5940	56.27720	24.26350	8.70	A4-F0,NA	CP1			B		75.0(11.3/1)
HD 23408	6000	56.45670	24.36780	3.87	B7,He-weak,Mn	CP3			BS		35.8(2.3/4)
HD 23924	6126	57.42050	23.34160	8.13	A3-A7,NA	CP1			B		80.0(12.0/1)
HD 27045	6910	64.31530	20.57860	4.92	A3-F3,NA	CP1			B		69.0(7.1/2)
HD 27429	7046	65.10460	18.74260	6.09	F2,Cr,Sr	CP1?			C		145.0(21.8/1)
GSC 02390-01591	8829	79.98280	30.38030	10.70	A3,NA	CP1?	2.3503	0.0012	BW		
HD 242858	8916	80.49290	29.80600	9.73	A2,NA	CP1?			C		
HD 243313	9007	81.22380	27.71690	10.07	A1,NA	CP1?	2.5837	0.0021	BW		
HD 243330	9023	81.25540	27.84810	10.80	A1,NA	CP1?			B		
AAO+29 16	9054	81.36630	26.99040	10.86	A2,NA	CP1?			C		
GSC 02403-01195	9055	81.43030	30.74420	10.70	A5,NA	CP1?	6.0118	0.0070	BW		
HD 243542	9123	81.60870	30.62020	10.05	A3,NA	CP1	1.8063	0.0009	BW	S11:0.039	
GSC 01859-01122	9137	81.62460	29.05950	11.00	A0,NA	CP1			B		
HD 243831	9232	81.98840	27.50820	10.00	A0,NA	CP1			C		
HD 243873	9238	82.13100	31.48880	9.90	A5,NA	CP1			C		
BD+22 918	9258	82.22790	22.70400	10.04	A2,NA	CP1?			B		
AAO+23 44	9318	82.52350	23.67150	10.88	A5,NA	CP1?			B		
HD 244168	9295	82.60550	33.44440	10.80	A1,NA	CP1?			B		
AAO+29 106	9325	82.62590	29.91810	11.70	A2,NA	CP1?			C		
BD+24 842	9342	82.67300	24.97390	11.40	A2,NA	CP1?			C		
BD+22 935	9397	83.07070	22.84510	10.85	A2,NA	CP1?			C		
HD 244709	9458	83.29810	23.22730	10.05	A3,NA	CP1?			C		
HD 244697	9451	83.30300	26.52920	10.21	A0,NA	CP1?			C		
AAO+29 132	9555	83.64190	29.28550	11.16	A2,NA	CP1?			C		
HD 245224	9701	84.01720	24.52310	10.26	A2,NA	CP1?			B		
HD 245323	9829	84.15730	25.15420	9.61	A0,NA	CP1?			C		
GSC 01861-00459	9885	84.29440	24.07220	11.40	A5,NA	CP1?			C		
HD 245989	10085	85.01130	26.90310	10.32	A3,NA	CP1?	3.6495	0.0041	BW		
HD 246289	10164	85.48100	32.48250	9.41	A2,NA	CP1?			B		
HD 246562	10221	85.71090	27.01060	9.58	A2,NA	CP1?	2.3156	0.0015	BW		
HD 246748	10235	85.89450	24.92370	9.95	A0,NA	CP1?			C		
AAO+26 165	10238	85.97850	26.73600	11.22	A5,NA	CP1?			C		
HD 246933	10244	86.15370	26.96910	10.40	A2,NA	CP1?			B		
HD 247015	10271	86.27680	28.44880	10.90	A0,NA	CP1?			C		
HD 38180	10260	86.29020	28.25270	8.43	A3,NA	CP1			B		
HD 247331	10322	86.57750	25.59150	9.01	A1,NA	CP1?			B		
HD 247582	10366	86.89910	23.64720	9.80	A2,NA	CP1?			B		
GSC 01874-00849	10389	87.06470	28.30790	10.60	A3,NA	CP1?	1.3382	0.0004	BW		
GSC 01862-01799	10439	87.43160	24.18390	10.80	A2,NA	CP1?			B		
GSC 01862-01946	10474	87.63480	23.92130	10.80	A2,NA	CP1?			B	S11:0.055	
GSC 01874-00718	10477	87.71160	29.71700	11.20	A1,NA	CP1?			B		
HD 248211	10481	87.73540	28.11870	10.13	A2,NA	CP1?			C		
AAO+24 242	10496	87.79750	24.13240	11.42	A5,NA	CP1?			C		
AAO+24 245	10503	87.85370	24.26440	11.15	A3,NA	CP1?	2.0279	0.0011	W		
HD 248532	10534	88.08880	24.01300	10.60	A1,NA	CP1?			B		
HD 248637	10565	88.22800	24.96660	10.40	A2,NA	CP1?			C	S11:0.080	
HD 248855	10599	88.48490	25.45120	10.20	A2,NA	CP1?			B		
HD 249041	10614	88.72340	25.09590	10.03	A5,NA	CP1?			C		
GSC 01875-02197	10616	88.78760	28.24660	10.60	A1,NA	CP1?			B		
AAO+27 275	10631	88.89180	27.20700	11.37	A0,NA	CP1?	1.4272	0.0006	BW		
HD 249218	10636	89.02380	29.01930	9.46	A0,NA	CP1?			B		
AAO+29 325	10637	89.06420	29.11570	10.89	A3,NA	CP1?			C		
AAO+27 298	10665	89.29640	27.90950	11.21	A0,NA	CP1?			B		
HD 249481	10671	89.32840	26.22300	9.98	A1,NA	CP1?			B		
HD 249570	10682	89.40600	23.70000	10.80	A2,NA	CP1?			C		
GSC 01871-00027	10713	89.56500	26.27860	10.34	A2,NA	CP1?			C		
AAO+27 332	10747	89.75990	27.50690	8.99	A0,NA	CP1?			B		
AAO+28 380	10746	89.77140	28.93460	11.27	A1,NA	CP1?			B		
HD 249991	10803	89.91600	22.62540	10.96	A0,NA	CP1?	3.8089	0.0032	BW		
HD 249889	10765	89.93490	33.50700	10.11	A2,NA	CP1?	7.0668	0.0134	W		
AAO+29 384	10809	90.05430	29.27390	11.60	A3,NA	CP1?	1.7539	0.0016	BW		
HD 40653	10874	90.35540	29.57740	8.43	A2,NA	CP1	5.9366	0.0184	BW		
HD 250408	10883	90.44320	23.66230	10.90	A2,NA	CP1?			B		
HD 250422	10889	90.50160	27.20210	10.07	A2,NA	CP1?			C		
HD 250443	10892	90.57140	32.19540	9.35	A3,NA	CP1?			C		
HD 250595	10919	90.66040	26.17110	9.43	A2,NA	CP1?			B		
HD 250687	10935	90.73140	24.44850	10.80	A3,NA	CP1			C		
HD 250751	10955	90.89920	29.58450	10.27	A0,NA	CP1?			B		
HD 251071	11009	91.14520	24.00660	10.28	A3,NA	CP1?			C		
GSC 01868-02652	11008	91.14990	25.09530	11.76	A0,NA	CP1?			B		
HD 251150	11024	91.20660	23.31800	10.50	A0,NA	CP1?			B		
GSC 01872-00982	11021	91.20760	27.10340	10.70	A2,NA	CP1?			B		
HD 251251	11034	91.37980	29.12920	10.36	A4,NA	CP1?			B		
HD 251618	11107	91.69670	24.98260	10.20	A2,NA	CP1?			B		
GSC 01864-01364	11108	91.70180	23.21850	11.86	A0,NA	CP1?			C		

Table 2: continued.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	Period days	σ_{period} days	Analysis remarks	Literature period	$\upsilon \sin i$ km s^{-1}
HD 251616	11106	91.73280	27.97500	11.00	A0,NA	CP1?			B		
HD 251944	11128	91.94580	24.19260	9.55	A0,NA	CP1?			B		
AAO+28 550	11142	92.08860	28.08040	11.19	A1,NA	CP1?	1.1274	0.0004	BW		
AAO+28 554	11175	92.16800	28.27180	11.64	A1,NA	CP1?			C		
HD 252154	11184	92.22220	23.80780	9.83	A5,NA	CP1?	3.1482	0.0032	BW	S11:0.688	
HD 252405	11190	92.36440	24.24350	8.78	B8,NA	CP1?			B		
AAO+24 459	11252	92.49970	24.91360	10.96	A2,NA	CP1?	1.0419	0.0002	W		
HD 43561	11570	94.42740	20.44190	8.53	A2,NA	CP1			B		
HD 44092	11700	95.29970	29.54080	6.40	A0,NA	CP1	3.5525	0.0030	W		50.0(5.7/2)
HD 258184	12160	97.52640	29.53640	9.35	A2-F2,NA	CP1	0.8416	0.0002	W		
HD 50186	13710	103.27600	25.31150	7.40	A2-A9,Sr	CP1			C		
HD 51688	14230	104.86600	25.91420	6.39	B8,Si,Mn	CP3			B		45.0(3.7/2)
HD 56484	15423	109.47000	19.54710	8.43	A2-F0,NA	CP1?			B	S11:0.067	
BD+23 1695	15730	110.78700	22.82110	8.98	A,NA	CP1?			C		
HD 72357	20025	128.28900	21.87590	9.00	A2,NA	CP1			C		
HD 73730	20540	130.09801	19.83500	7.99	A3-F2,NA	CP1			B		32.2(3.2/2)
HD 73731	20550	130.11301	19.54480	6.29	A3-F0,dD	CP1			B		49.2(0.6/3)
HD 76364	21450	134.09801	21.85940	9.28	A2,NA	CP1			C		
HD 95190	27400	164.88800	9.93079	7.27	A3-F2,NA	CP1	9.5787	0.0323	W		
HD 120025	34600	206.80499	-19.25580	6.71	A2-F3,NA	CP1	3.4810	0.0035	BSW		
HD 120727	34764	207.89000	-18.35710	8.54	A1-F0,NA	CP1			B		
HD 124275	35574	213.22701	-14.17240	8.88	A2-F0,NA	CP1			C		
HD 125125	35744	214.42700	-8.76019	10.15	A3-F2,NA	CP1			C		
HD 126214	35974	216.15800	-14.71350	7.93	A2-F3,NA	CP1			B		
HD 135485	38490	228.93900	-14.69290	8.13	B5,Ti,N,Mn	CP3			CS		0.0(2.1/1)
HD 138413	39410	233.15300	-19.67050	5.52	A2-F1,NA	CP1	0.2914	0.0001	BSW		35.5(3.2/2)
HD 146053	41315	243.75200	-20.04720	10.09	A6-F3,NA	CP1			B	S11:0.101	
HD 150736	42654	250.98100	-25.28330	10.08	A1-F0,NA	CP1	1.3121	0.0005	BW		
HD 191971	53516	303.32199	-22.05960	9.16	A6-F3,NA	CP1			B		
HD 192666	53720	304.09500	-12.33710	6.30	B9,Hg	CP3?			B		100.0(15.0/1)
HD 193452	54010	305.19400	-14.78490	6.10	B9,Hg,Pt,Sr	CP3?			B		2.2(0.1/4)
HD 194142	54185	306.17899	-24.25550	9.01	A1-A9,NA	CP1			C		
HD 194623	54280	306.89499	-26.20330	8.71	F2,Sr	CP1			B		
HD 197354	55016	310.93900	-20.51370	9.85	A0-F0,NA	CP1			C		
HD 204972	57104	323.16299	-21.77650	8.74	A2-F2,NA	CP1			CS	S11:0.072	
HD 211813	58795	335.03601	-15.28320	9.68	A1-F0,Sr	CP1	2.1666	0.0035	W		
HD 216931	59880	344.27899	-3.24522	6.62	A0,NA	CP1			C		73.0(4.0/1)

Table 3. Properties of the CP1 and CP3 stars identified as photometrically variable.

Name	# R09	RA deg.	DEC deg.	V mag	Spectral Type	CP class	Period days	σ_{period} days	MJD maximum	Analysis remarks	Literature period	$\upsilon \sin i$ km s^{-1}	$T_{\rm eff}$ K	$\log L/L_{\odot}$ dex	$M/M_{\odot}$	τ
HD 2523	600	7.28586	11.32020	8.10	A8-F2,NA	CP1	0.5668	0.0001	54167.607	B			7050(-/1)	0.77(0.11)	1.51(0.06)	0.37(0.29)
HD 7374	1850	18.53180	16.13350	5.97	B9,Si,Hg,Mn	CP3	2.8240	0.0019	54187.360	B	C98:2.8	24.2(0.8/4)	12811(68/4)	2.18(0.10)	3.40(0.15)	0.31(0.25)
HD 21437	5350	52.00580	20.46430	6.89	A3-F3,NA	CP1	0.7981	0.0002	54208.748	B						
HD 23607	6050	56.83060	24.13910	8.28	A4-F2,NA	CP1	1.8526	0.0007	54213.398	BS	S09+W:0.047	10.0(1.5/1)	7981(91/3)		2.16(0.45)	
HD 23950	6130	57.47950	22.24410	6.07	B9,Si,Hg,Mn	CP3	3.2509	0.0020	54216.059	B	C98:1.1	82.5(3.8/4)	12504(245/4)	1.97(0.11)	3.11(0.17)	0.03(0.18)
HD 27628	7080	65.51470	14.07720	5.72	A3-F2,NA	CP1	1.0718	0.0003	54220.184	S	S09+W:0.0625	29.5(5.0/4)	7210(90/99)	0.90(0.05)	1.60(0.04)	0.49(0.13)
HD 28929	7400	68.65830	28.96110	5.89	B8,Hg,Mn	CP3	1.9773	0.0009	54226.963	B*		60.0(3.5/3)	12673(106/4)	2.30(0.09)	3.52(0.14)	0.53(0.18)
HD 31592	8066	74.53910	25.05040	5.81	B9-A2,NA	CP1	0.8679	0.0002	54228.493	B*		120.0(18.0/1)	9907(105/3)	1.56(0.06)	2.37(0.05)	0.30(0.13)
BD+23 926s	9353	82.77300	23.21780	10.19	A5,NA	CP1?	0.9389	0.0003	54236.168	B	S09+W:0.9426					
HD 244698	9454	83.29710	24.11810	10.34	A2,NA	CP1?	0.9993	0.0004	54236.593	B	S11:0.0339					
HD 37683	10158	85.41090	28.45670	8.09	A2,NA	CP1	3.2739	0.0023	54238.497							
HD 37752	10180	85.47820	23.32620	6.58	B8,He-weak,Hg	CP3	1.3049	0.0006	54238.583	B			14876(78/4)	2.65(0.15)	4.40(0.25)	0.49(0.24)
HD 246709	10234	85.90630	28.19120	10.38	A3,NA	CP1?	1.6175	0.0008	54238.570	B						
HD 247696	10393	87.08320	27.00410	9.25	A2,NA	CP1?	2.5673	0.0013	54239.754							
HD 248052	10441	87.47770	24.93000	10.59	A0,NA	CP1?	1.0176	0.0003	54240.535	B						
HD 39078	10499	87.82110	23.92630	8.52	A1,NA	CP1?	0.9913	0.0004	54240.527	B			8489(15/50)	1.17(0.23)	1.90(0.15)	0.27(0.30)
AAO+23 222	10508	87.88550	23.73550	11.50	A0,NA	CP1?	0.9911	0.0003	54240.512	B						
AAO+25 242	10511	87.95740	25.33700	11.73	A0,NA	CP1?	1.1202	0.0004	54240.836	B						
GSC 02406-01881	10689	89.56440	30.52990	10.37	A2,NA	CP1?	0.5419	0.0001	54241.624	B						
BD+27 937	10745	89.74970	27.31490	9.97	A1,NA	CP1?	1.1164	0.0003	54242.091	B						
AAO+28 487	11027	91.29930	28.98370	11.72	A0,NA	CP1?	1.8278	0.0010	54242.924	S						
HD 251382	11075	91.49360	26.60980	10.40	A1,NA	CP1	1.1818	0.0004		BW						
HD 252100	11155	92.14370	29.01840	9.50	A0,NA	CP1?	2.6343	0.0010	54244.200	BS						
HD 42066	11198	92.43070	24.14520	8.67	A2,NA	CP1?	2.1025	0.0009	54245.215	B			8606(150/50)		2.35(0.47)	
							0.9911	0.0195								
HD 253252	11387	93.07140	14.94480	10.22	A4-F1,NA	CP1	0.4055	0.0001	54244.554	B*						
HD 49606	13440	102.45800	16.20290	5.87	B8,Mn,Hg,Si	CP3	2.2661	0.0024	54254.496	B	C01:3.35 / B:1.10503	29.0(1.7/3)	13500(-/99)	2.80(0.14)	4.45(0.28)	0.84(0.11)
HD 56152	15290	109.20200	24.53630	7.32	A1-A2,NA	CP1	1.2612	0.0004	54259.435	B			9279(312/50)	1.46(0.24)	2.21(0.20)	0.41(0.34)
							3.1645									
HD 73045	20280	129.20000	18.88280	8.63	A3-F5,NA	CP1	1.2499	0.0006	54277.647	B		12.1(1.1/2)	7581(186/3)	1.18(0.21)	1.83(0.17)	0.65(0.21)
HD 76543	21576	134.31200	15.32280	5.18	A3-F0,NA	CP1	0.4592	0.0001	54281.914			89.3(7.6/3)	8348(22/3)	1.14(0.05)	1.87(0.04)	0.29(0.13)
HD 85040	24280	147.45900	21.17940	6.10	A7,NA	CP1	2.0735	0.0010	54293.176	*	S09+W:0.08184505	89.0(7.1/2)	7644(198/3)	2.02(0.13/T)	2.59(0.10)	1(0)
							0.0834									
							0.0881									
HD 104321	30187	180.21800	6.61432	4.66	A4-A7,NA	CP1	1.9469	0.0012	54325.915	B*		67.3(5.8/3)	8312(348/3)	2.17(0.07/T)	2.84(0.09)	1(0)
HD 109532	31770	188.86200	-9.43422	9.38	A2-F0,NA	CP1?	1.1775	0.0006	54338.929	B						
HD 122911	35220	211.20300	-6.55242	7.83	A7-F2,NA	CP1	1.0731	0.0004	54357.396	B		45.4(3.5/2)	6862(-/1)	1.25(0.19)	1.86(0.18)	0.90(0.10)
							0.5736									
HD 138124	39305	232.68900	-22.19030	8.72	A2-F3,NA	CP1	1.1998	0.0004	54381.570	S			7143(202/50)	1.37(0.31)	1.99(0.28)	0.89(0.16)
							5.8309									
HD 138821	39553	233.79700	-21.00780	8.77	A0-A8,NA	CP1	1.1714	0.0004	54381.492	B*			7498(351/50)	0.84(0.24)	1.60(0.12)	0.18(0.29)
HD 139202	39636	234.38000	-22.11700	6.97	A0-F0,NA	CP1	1.4938	0.0006	54382.066	B			7875(177/50)	1.40(0.10)	2.05(0.09)	0.76(0.08)
HD 144844	41040	242.18201	-23.68540	5.87	B9,Mn,P,Ga	CP3	2.6900	0.0026	54390.038	B		45.0(1.5/4)	12430(460/99)	2.28(0.09)	3.46(0.14)	0.57(0.16)
						CP3	0.2771									
HD 150366	42530	250.40100	-24.46800	6.07	A4-A9,Sr	CP1	2.5165	0.0023	54399.646	B		34.0(3.2/2)	7971(195/3)	1.37(0.06)	2.03(0.05)	0.71(0.08)
HD 198174	55160	312.32300	-25.78120	5.86	B7	CP3	2.5445	0.0022	54451.244	*		65.0(9.8/1)	13217(341/4)	2.95(0.15)	4.73(0.29)	0.94(0.07)
HD 199366	55564	314.29901	-16.17350	8.92	A2-F2	CP1	1.0648	0.0004	54108.196	B			7006(-/1)		1.82(0.37)	
HD 199443	55580	314.41901	-16.03150	5.88	A3-F3	CP1	0.2220	0.00003	54453.867	B		81.5(7.1/2)	8109(45/3)	1.02(0.05)	1.77(0.04)	0.17(0.16)
HD 202671	56480	319.48901	-17.98510	5.40	B7,He-weak,Mn	CP3	1.9917	0.0013	54121.823			26.7(1.7/3)	13150(70/99)	2.56(0.09)	3.98(0.16)	0.72(0.12)
							0.4504									
							1.2120									
HD 211838	58800	335.04999	-7.82111	5.35	B8,Mn,Hg	CP3	6.5633	0.0063	54129.934	B		65.0(6.9/2)	12454(152/4)	3.01(0.13/T)	4.63(0.25)	1(0)
							0.2211									
HD 216494	59790	343.37000	-11.61650	5.80	B9,Hg,Mn	CP3	3.5892	0.0064	54138.905	B	S:3.4	11.4(0.1/5)	11865(30/4)	2.66(0.13)	4.01(0.24)	0.93(0.08)

B: Bychkov et al. (2005)
C98: Catalano & Renson (1998)
C01: Renson & Catalano (2001)
S09: Samus et al. (2009)
S11: Smalley et al. (2011)
W: Watson (2006)

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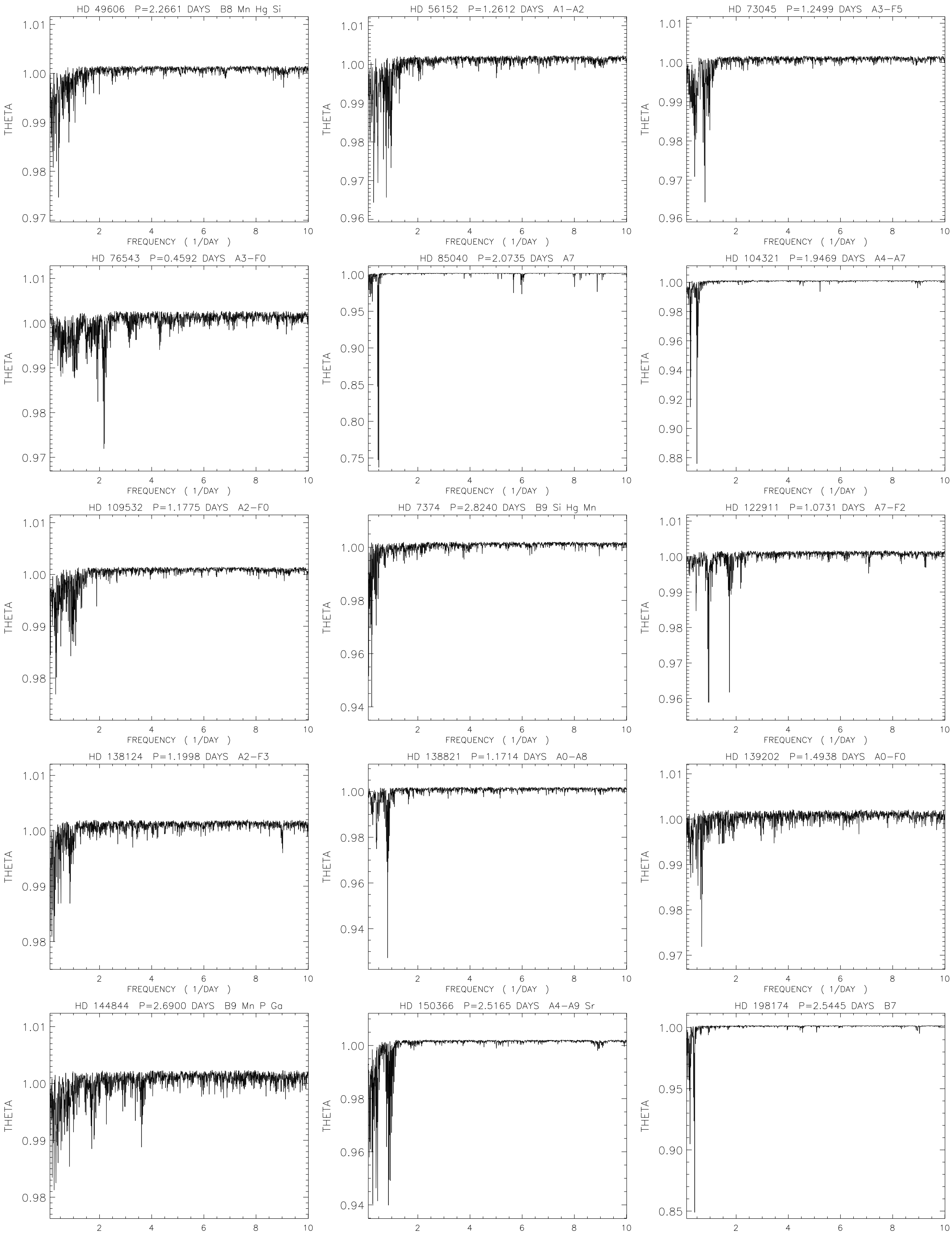
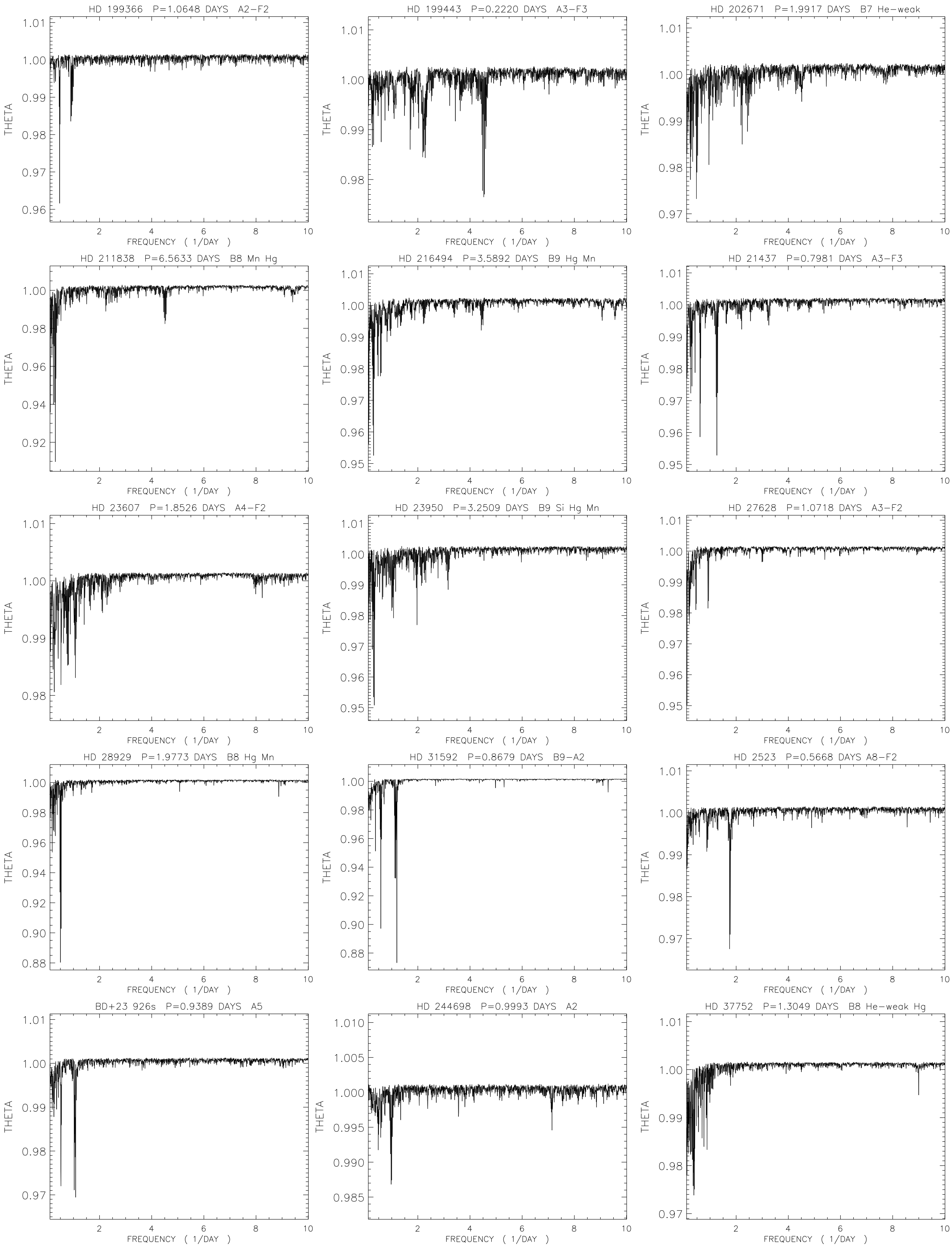


Figure 6. Periodograms obtained for the CP1/3 stars, listed in Table 3.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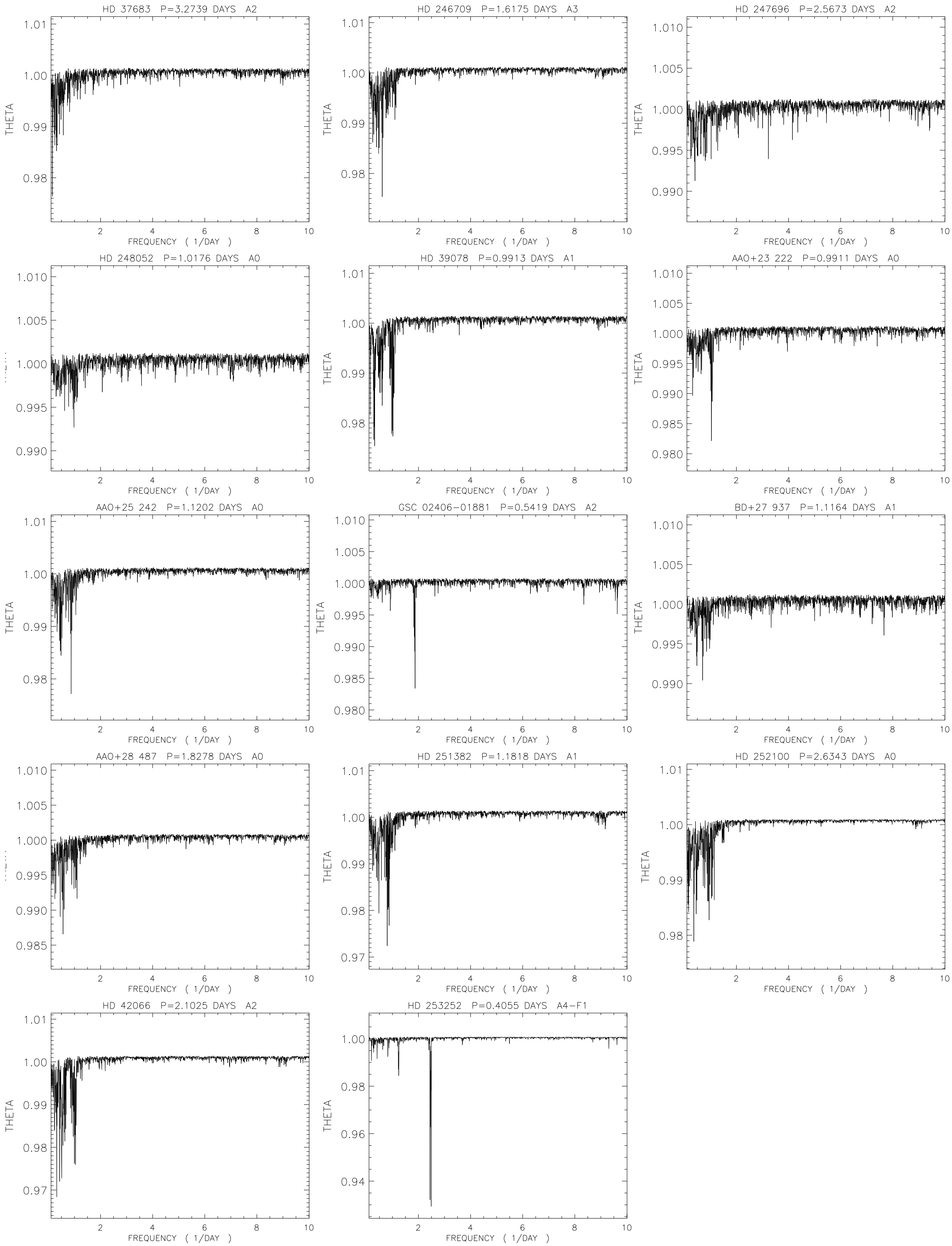
HD 199443 P=0.2220 DAYS A3−F3
HD 202671 P=1.9917 DAYS B7 He−weak
HD 211838 P=6.5633 DAYS B8 Mn Hg
HD 216494 P=3.5892 DAYS B9 Hg Mn
HD 21437 P=0.7981 DAYS A3−F3
HD 23607 P=1.8526 DAYS A4−F2
HD 23950 P=3.2509 DAYS B9 Si Hg Mn
HD 27628 P=1.0718 DAYS A3−F2
HD 28929 P=1.9773 DAYS B8 Hg Mn
HD 31592 P=0.8679 DAYS B9−A2
HD 2523 P=0.5668 DAYS A8−F2
BD+23 926s P=0.9389 DAYS A5
HD 244698 P=0.9993 DAYS A2
HD 37752 P=1.3049 DAYS B8 He−weak Hg
THETA
FREQUENCY (1/DAY)


HD 37683 P=3.2739 DAYS A2
HD 246709 P=1.6175 DAYS A3
HD 247696 P=2.5673 DAYS A2
HD 248052 P=1.0176 DAYS A0
HD 39078 P=0.9913 DAYS A1
AAO+23 222 P=0.9911 DAYS A0
AAO+25 242 P=1.1202 DAYS A0
GSC 02406-01881 P=0.5419 DAYS A2
BD+27 937 P=1.1164 DAYS A1
AAO+28 487 P=1.8278 DAYS A0
HD 251382 P=1.1818 DAYS A1
HD 252100 P=2.6343 DAYS A0
HD 42066 P=2.1025 DAYS A2
HD 253252 P=0.4055 DAYS A4-F1
THETA
FREQUENCY (1/DAY)

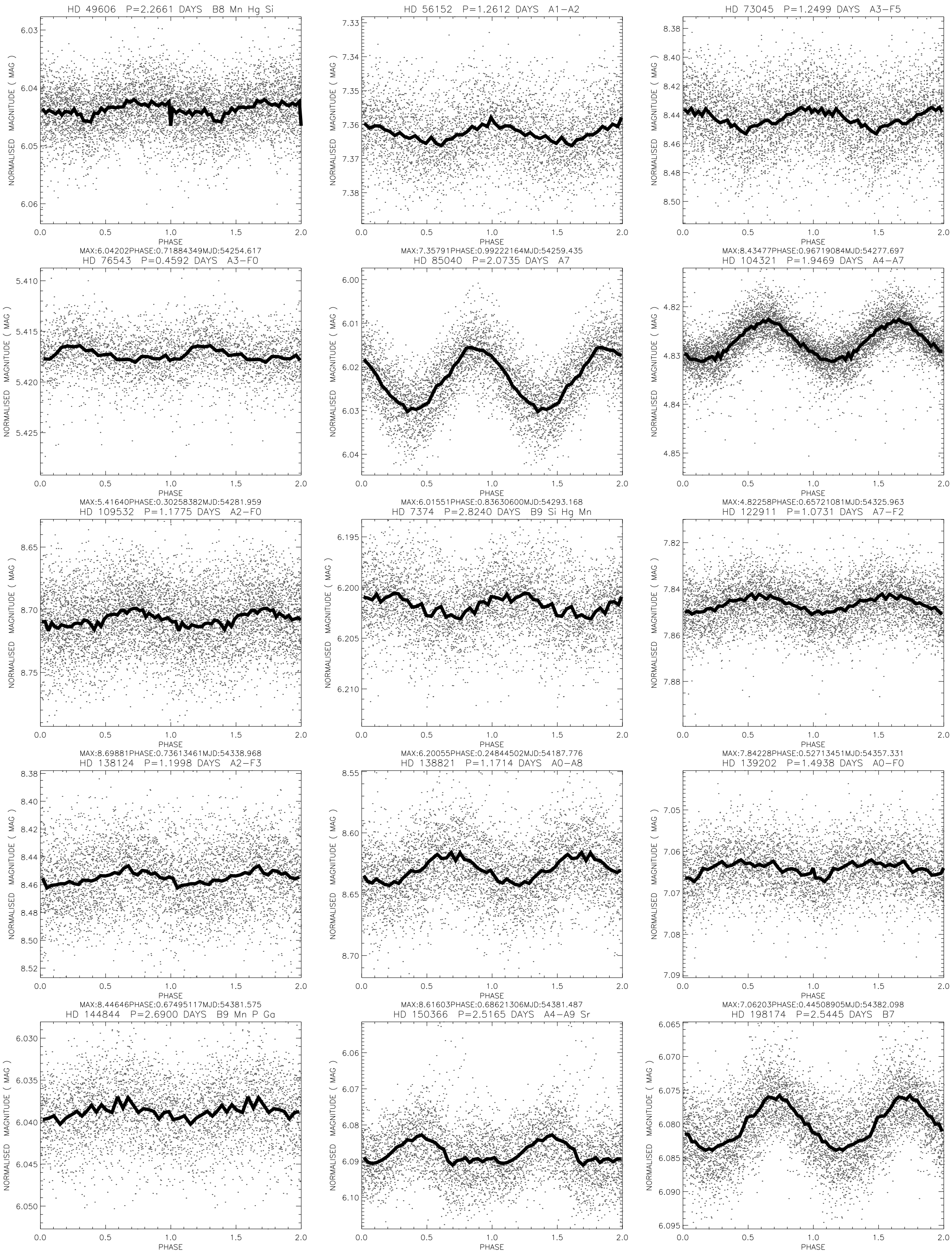
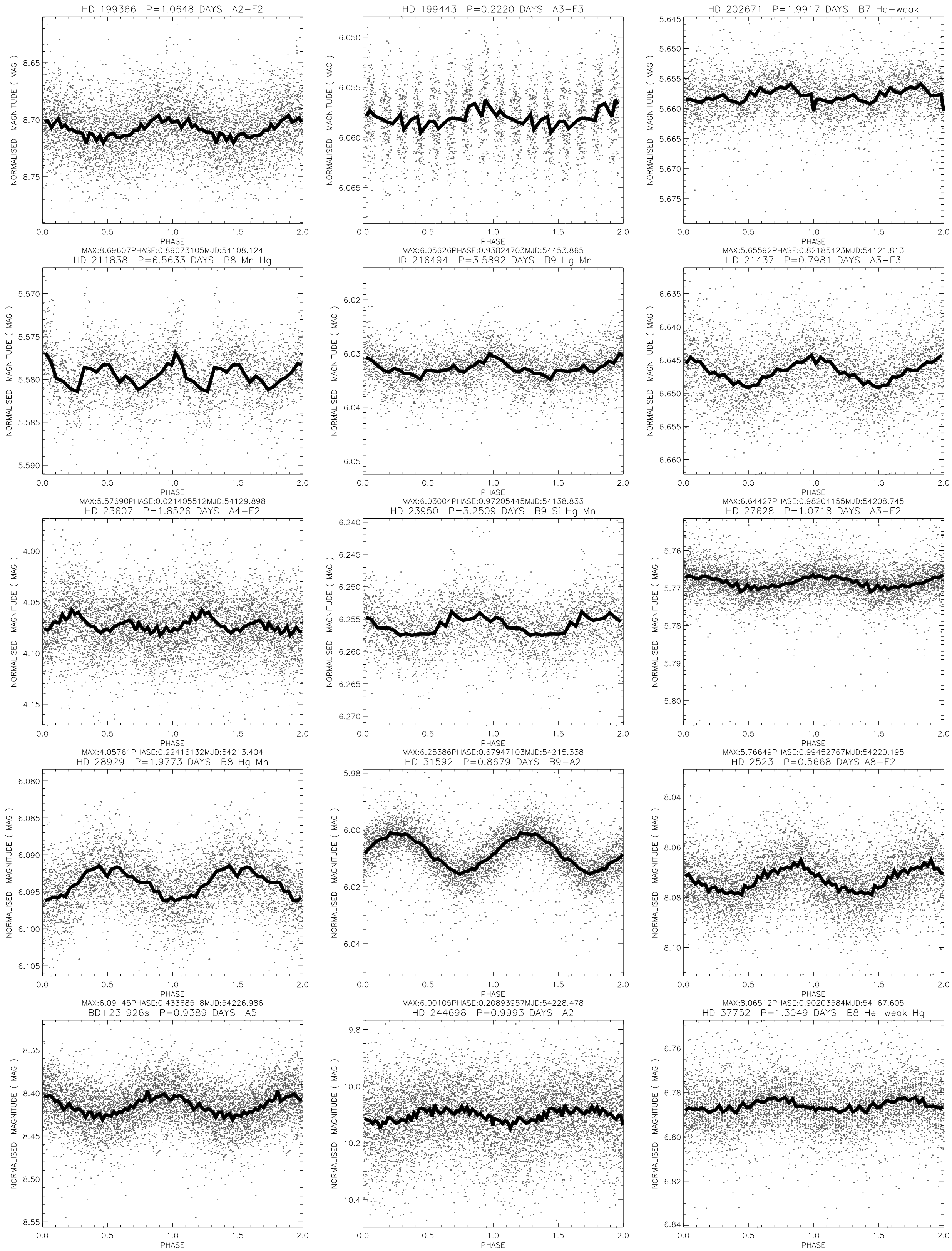


Figure 7. Light curves obtained for the CP1/3 stars, listed in Table 3, phase-folded on the most significant period.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HD 199443 P=0.2220 DAYS A3−F3
MAX:6.05626PHASE:0.93824703MJD:54453.865
HD 202671 P=1.9917 DAYS B7 He−weak
MAX:5.65592PHASE:0.82185423MJD:54121.813
HD 211838 P=6.5633 DAYS B8 Mn Hg
MAX:5.57690PHASE:0.021405512MJD:54129.898
HD 216494 P=3.5892 DAYS B9 Hg Mn
MAX:6.03004PHASE:0.97205445MJD:54138.833
HD 21437 P=0.7981 DAYS A3−F3
MAX:6.64427PHASE:0.98204155MJD:54208.745
HD 23607 P=1.8526 DAYS A4−F2
MAX:4.05761PHASE:0.22416132MJD:54213.404
HD 23950 P=3.2509 DAYS B9 Si Hg Mn
MAX:6.25386PHASE:0.67947103MJD:54215.338
HD 27628 P=1.0718 DAYS A3−F2
MAX:5.76649PHASE:0.99452767MJD:54220.195
HD 28929 P=1.9773 DAYS B8 Hg Mn
MAX:6.09145PHASE:0.43368518MJD:54226.986
HD 31592 P=0.8679 DAYS B9−A2
MAX:6.00105PHASE:0.20893957MJD:54228.478
HD 2523 P=0.5668 DAYS A8−F2
MAX:8.06512PHASE:0.90203584MJD:54167.605
BD+23 926s P=0.9389 DAYS A5
MAX:8.39750PHASE:0.80828168MJD:54236.056
HD 244698 P=0.9993 DAYS A2
MAX:10.0658PHASE:0.55113033MJD:54236.348
HD 37752 P=1.3049 DAYS B8 He−weak Hg
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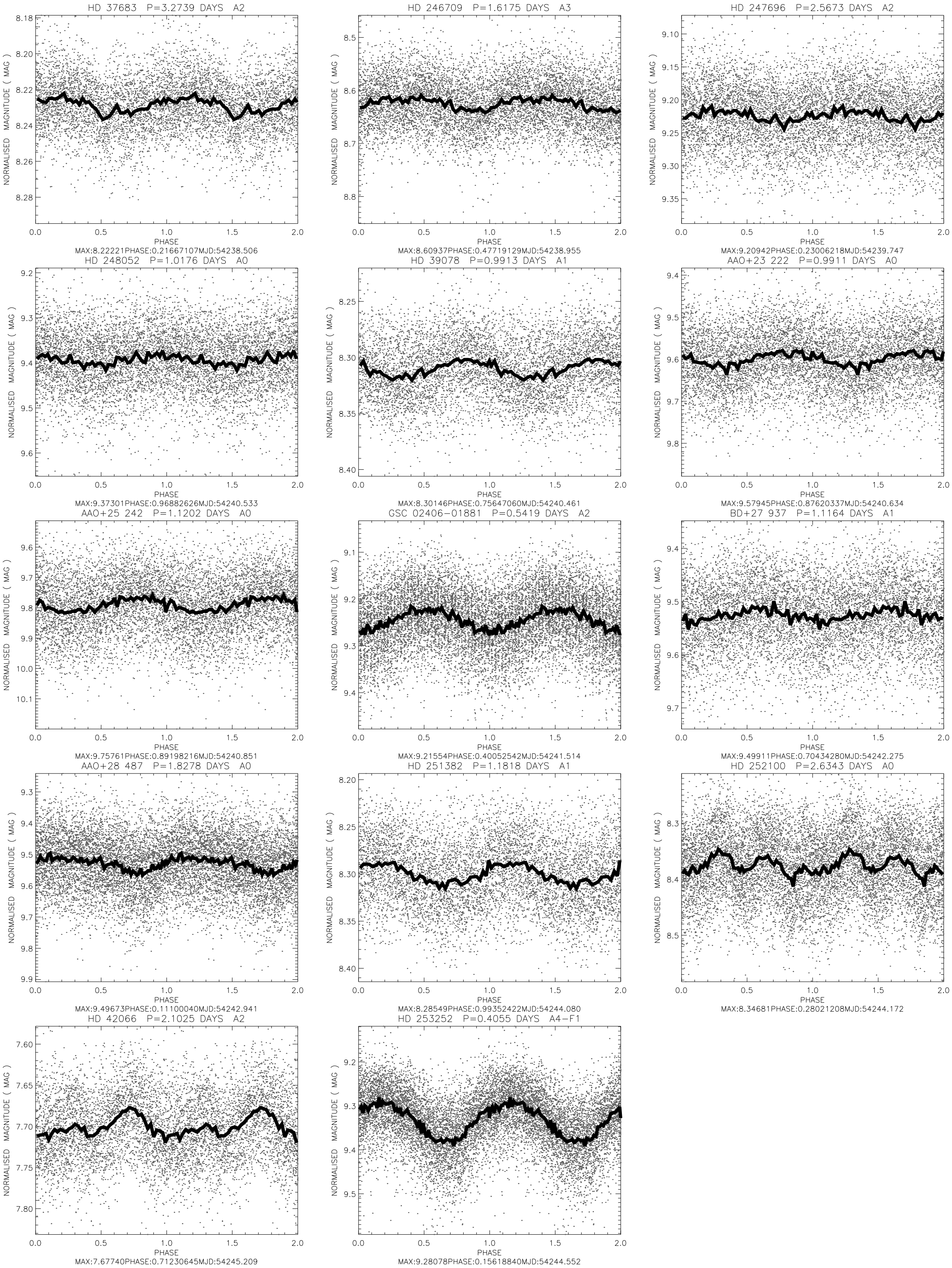
NORMALISED MAGNITUDE (MAG)
PHASE


HD 37683 P=3.2739 DAYS A2
MAX:8.22221PHASE:0.21667107MJD:54238.506
HD 246709 P=1.6175 DAYS A3
MAX:8.60937PHASE:0.47719129MJD:54238.955
HD 247696 P=2.5673 DAYS A2
MAX:9.20942PHASE:0.23006218MJD:54239.747
HD 248052 P=1.0176 DAYS A0
MAX:9.37301PHASE:0.96882626MJD:54240.533
HD 39078 P=0.9913 DAYS A1
MAX:8.30146PHASE:0.75647060MJD:54240.461
AAO+23 222 P=0.9911 DAYS A0
MAX:9.57945PHASE:0.87620337MJD:54240.634
AAO+25 242 P=1.1202 DAYS A0
MAX:9.75761PHASE:0.89198216MJD:54240.851
GSC 02406-01881 P=0.5419 DAYS A2
MAX:9.21554PHASE:0.40052542MJD:54241.514
BD+27 937 P=1.1164 DAYS A1
MAX:9.49911PHASE:0.70434280MJD:54242.275
AAO+28 487 P=1.8278 DAYS A0
MAX:9.49673PHASE:0.11100040MJD:54242.941
HD 251382 P=1.1818 DAYS A1
MAX:8.28549PHASE:0.99352422MJD:54244.080
HD 252100 P=2.6343 DAYS A0
MAX:8.34681PHASE:0.28021208MJD:54244.172
HD 42066 P=2.1025 DAYS A2
MAX:7.67740PHASE:0.71230645MJD:54245.209
HD 253252 P=0.4055 DAYS A4-F1
MAX:9.28078PHASE:0.15618840MJD:54244.552
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PHASE